

Anomalous Right Coronary Artery Originating from Mid Left Anterior Descending Artery- An Unexpected Encounter during Primary Percutaneous Coronary Intervention

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ABSTRACT

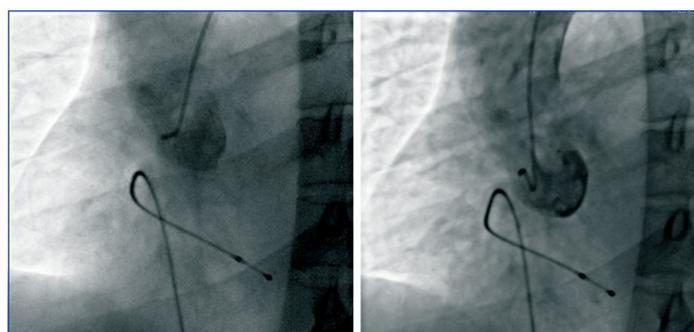
The appearance of single coronary artery with anomalous Right Coronary Artery (RCA) originating from left coronary artery is an extremely rare encounter. Here, the authors report one such case of a 34-year-old male, who was serendipitously encountered with a single coronary artery with anomalous RCA arising from mid Left Anterior Descending (LAD) artery. He presented with anterior wall ST-elevation Myocardial Infarction (STEMI) and developed complete heart block. His mid LAD supplying anomalous RCA was totally occluded which was successfully recanalised using drug-eluting stent. The computed tomographic angiography confirmed single coronary artery with anomalous RCA arising from mid LAD across the stent. Thus, if RCA is not seen during traditional coronary angiography, the interventionalist should keep in mind that RCA can originate from LAD.

Keywords: Congenital coronary artery anomaly, Computed tomographic angiography, Drug-eluting stent, Single coronary artery

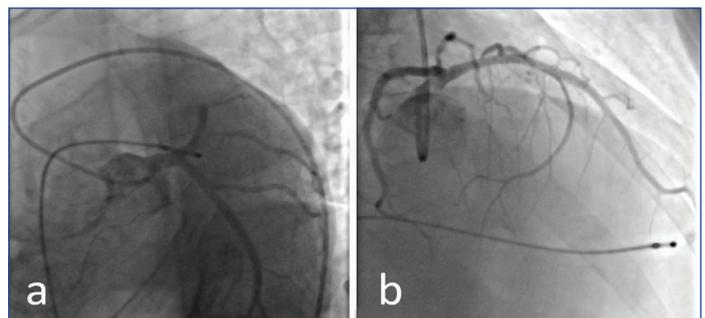
CASE REPORT

A 34-year-old male with complaints of persistent chest pain was referred for further evaluation at the Department of Cardiology, Yashoda Hospital, Malakpet, Hyderabad, Telangana, India. He was thrombolysed with Tenecteplase six hours prior, at another centre, for acute anterior wall myocardial infarction. He had no known atherosclerotic risk factors, but laboratory examination revealed dyslipidemia with high serum triglyceride levels (280 mg/dL). On evaluation, his electrocardiogram revealed persisting ST elevations in anterior leads and complete heart block with heart rates of 38 beats/minute. Echocardiography revealed anterior wall akinesia with moderate left ventricular ejection fraction (40%).

In view of failed thrombolysis, he was subjected to immediate coronary angiography and rescue Percutaneous Coronary Intervention (PCI). He was supported with temporary pacemaker implantation. Surprisingly, his Right Coronary Artery (RCA) was not engaged despite several attempts [Table/Fig-1], thus presence of anomalous RCA was suspected. Left coronary angiogram revealed totally occluded mid Left Anterior Descending (LAD) artery with thrombus burden [Table/Fig-2a] and rescue PCI with a 3.0×28 mm drug-eluting stent was performed. Thrombolysis in myocardial infarction score-3 flow was achieved at the end of the procedure [Table/Fig-2b].

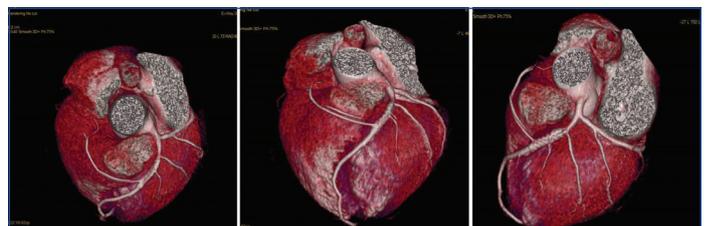


[Table/Fig-1]: Coronary angiography- right coronary artery could not be seen on sinus injection, despite several attempts.



[Table/Fig-2]: a) Left coronary angiogram with temporary pacemaker support; shows totally occluded mid left anterior descending artery; b) Poststenting check angiogram shows right coronary artery originating from mid left anterior descending artery across the stent.

He was stabilised and CT-coronary angiography was planned after two days of the procedure to assess RCA. It confirmed the presence of only single coronary artery arising from left coronary sinus and congenitally abnormal RCA arising from mid LAD lesion across the implanted stent. Anomalous RCA arising from mid LAD across the stent was found passing anterior to pulmonary artery and course towards right A-V groove supplying RCA territory [Table/Fig-3,4]. This blocked anomalous RCA was the reason of his complete heart block. The patient was prescribed dual antiplatelet therapy, statins, and Nikoran postprocedure. The patient was doing well without any adverse events at eight months follow-up visit.



[Table/Fig-3]: CT-angiographic images poststenting showing single left coronary artery arising from left coronary sinus. Anomalous right coronary artery seen arising from mid left anterior descending artery across the stent which runs anterior to pulmonary artery into the right atrioventricular groove.

