CASE REPORT

ANOMALOUS LEFT CIRCUMFLEX ARTERY ARISING FROM THE RIGHT CORONARY ARTERY: SUCCESSFUL DUAL-VESSEL STENTING IN MYOCARDIAL INFARCTION

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ABSTRACT

Anomalies of the coronary arteries are rare finding during angiography. We report a case of a woman of 56 years of age, with uncontrolled diabetes and hypertension presented with non-ST elevation myocardial infarction (NSTEMI). Angiography revealed a total occlusion of proximal right coronary artery (RCA) and a severe stenosis of anomalous left circumflex artery (LCX) originating from the proximal RCA. Percutaneous coronary intervention (PCI) through the right radial approach successfully restored flow in both vessels with the help of drug-eluting stents. This case highlights the critical importance of identifying anomalous coronary anatomy in acute coronary syndromes to ensure comprehensive revascularization and optimize outcomes in high-risk patients.

Keywords: Coronary artery anomaly, left circumflex artery, right coronary artery, PCI, NSTEMI, coronary angiography

CASE REPORT:

A 56-year-old woman with poorly controlled diabetes and hypertension presented with chest pain for three days. She was hemodynamically stable at the time of presentation. ECG showed dynamic ST–T changes. Her cardiac enzymes and Troponin-I confirmed NSTEMI. She was started on guideline-directed medical therapy and she underwent coronary angiography.

The angiogram revealed normal left anterior descending artery; however, the LCX was not visualized from the left main coronary artery. Further injection into the RCA demonstrated a total occlusion of the proximal RCA and anomalous LCX

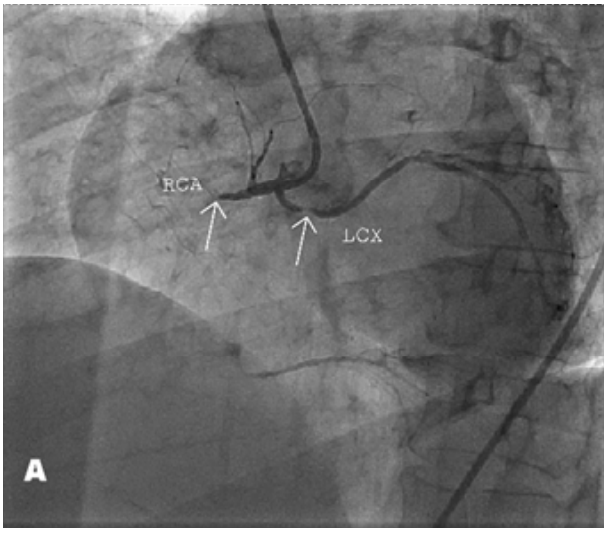

Fig-A: Coronary angiogram showing total occlusion of the proximal right coronary artery (RCA) and a severe proximal stenosis of an anomalous left circumflex artery (LCX) originating from the proximal RCA.

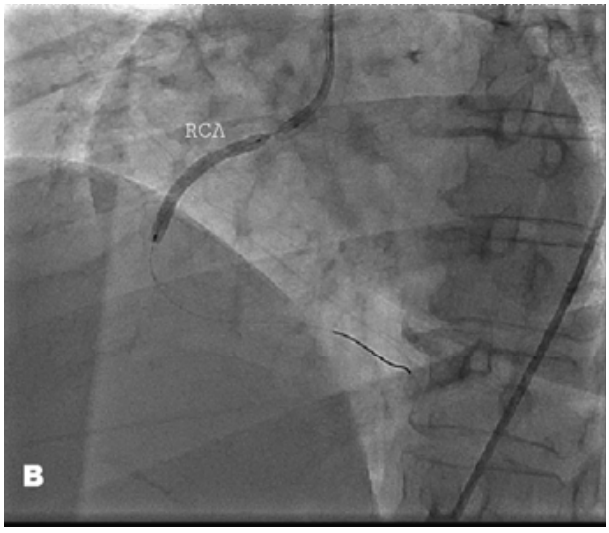

Fig-B: Percutaneous coronary intervention (PCI) of the proximal RCA using a drug-eluting stent following balloon pre-dilatation.

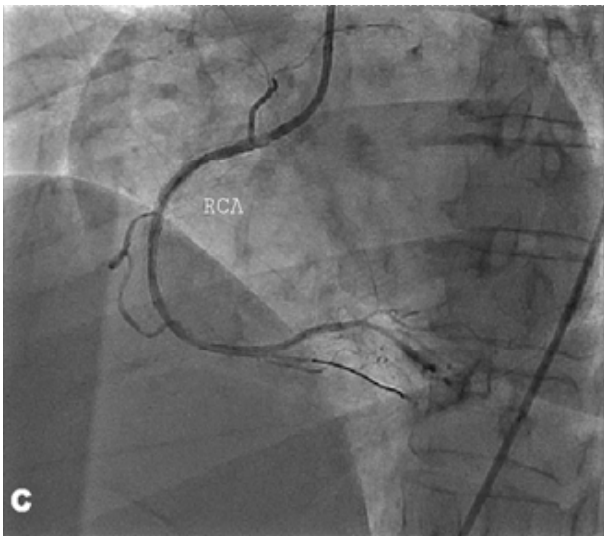

Fig-C: Final angiographic image showing successful revascularization of the RCA with restoration of TIMI grade 3 flow.

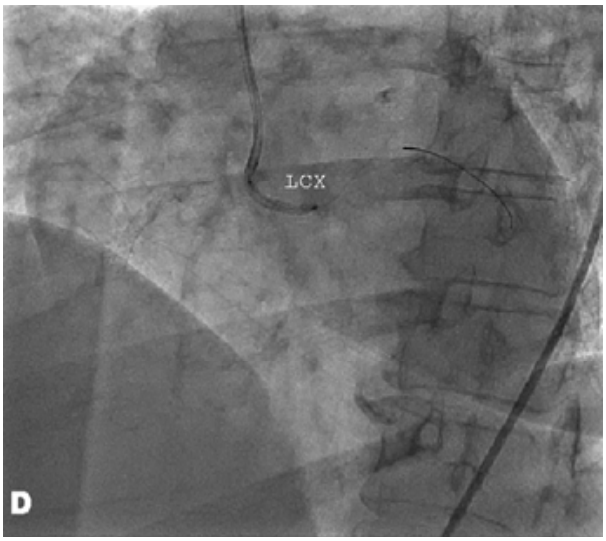

Fig-D: PCI of the anomalous LCX with direct stenting using a drug-eluting stent.

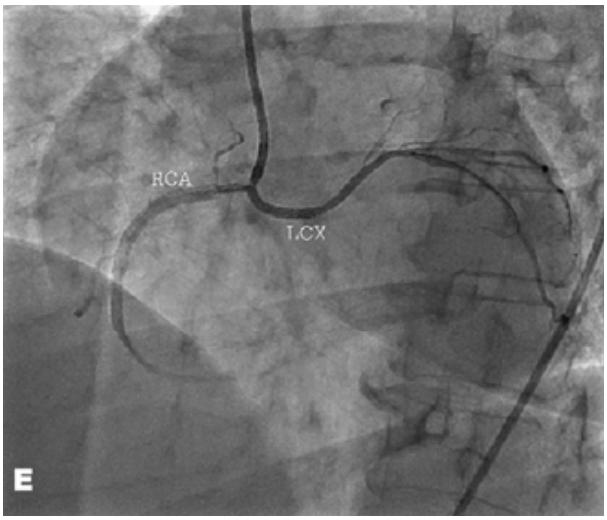

Fig-E: Final angiographic result showing restored TIMI grade 3 flow in both the RCA and anomalous LCX following successful intervention.

originating from the proximal RCA with severe proximal stenosis.

PCI was performed via the right radial artery approach. The RCA lesion was crossed, pre-dilated with 2 × 15 mm balloon and stented with a 3.0 × 30 mm drug-eluting stent. The anomalous LCX was then engaged and treated with a 2.25 × 15 mm drug-eluting stent directly. Final angiogram revealed TIMI 3 flow in both vessels. The patient tolerated the procedure and was discharged on recommended medical therapy and planned for one-month outpatient follow-up.

DISCUSSION

Anomalous origin of the LCX from the RCA or right coronary sinus is the most common coronary artery anomaly, reported in approximately 0.37% to 0.67% of angiographic studies[1,2]. This variant typically follows a benign retro-aortic course and remains asymptomatic, but can complicate diagnosis and intervention in acute coronary syndromes[3].

Recognition of this anomaly is crucial to avoid incomplete revascularization, especially when both the RCA and LCX have significant obstructive lesions. Successful PCI requires careful catheter selection and guidewire manipulation tailored to the anomalous anatomy[4,5]. Operators should maintain a high index of suspicion when expected arterial branches are not visualized, ensuring thorough angiographic evaluation to optimize procedural success[6].

CONCLUSION:

Anomalies of coronary arteries can significantly impact the management strategy of coronary artery disease. An anomalous origin of the left circumflex artery (LCX) that came from the right coronary artery (RCA) may be for granted without a thorough angiographic evaluation. Early recognition of these anomalies and timely intervention strategies are crucial for achieving complete

revascularization. This case highlights the necessity of careful anatomical assessment and appropriate treatment in complex coronary presentation.

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