



Absent Left Main Coronary Artery with Separate Origin of Left Anterior Descending Artery and Left Circumflex Artery from Left Coronary Sinus

MULTIMODALITY
MUSEUM IMAGE

DAMANDEEP SINGH, MD**

NIRAJ NIRMAL PANDEY, DM**

NEERAJ PARAKH, DM

*Author affiliations can be found in the back matter of this article

**Contributed equally to the manuscript and share the first authorship

HOUSTON
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VASCULAR CENTER

ABSTRACT

We report a case of a 49-year-old female who presented with atypical chest pain. An electrocardiogram-gated coronary computed tomography angiography revealed the absence of the left main coronary artery segment with direct origin of the left anterior descending artery and the left circumflex artery from the left coronary sinus having separate ostia. The case highlights a rare anomaly of coronary artery origin with procedural implications.

CORRESPONDING AUTHOR:

Niraj Nirmal Pandey, DM

Department of Cardiovascular Radiology & Endovascular Interventions, All India Institute of Medical Sciences, New Delhi-110029, India

nirajpandey2403@gmail.com

KEYWORDS:

coronary artery anomaly; anomalous coronary artery origin; absent left main coronary artery; coronary computed tomography angiography

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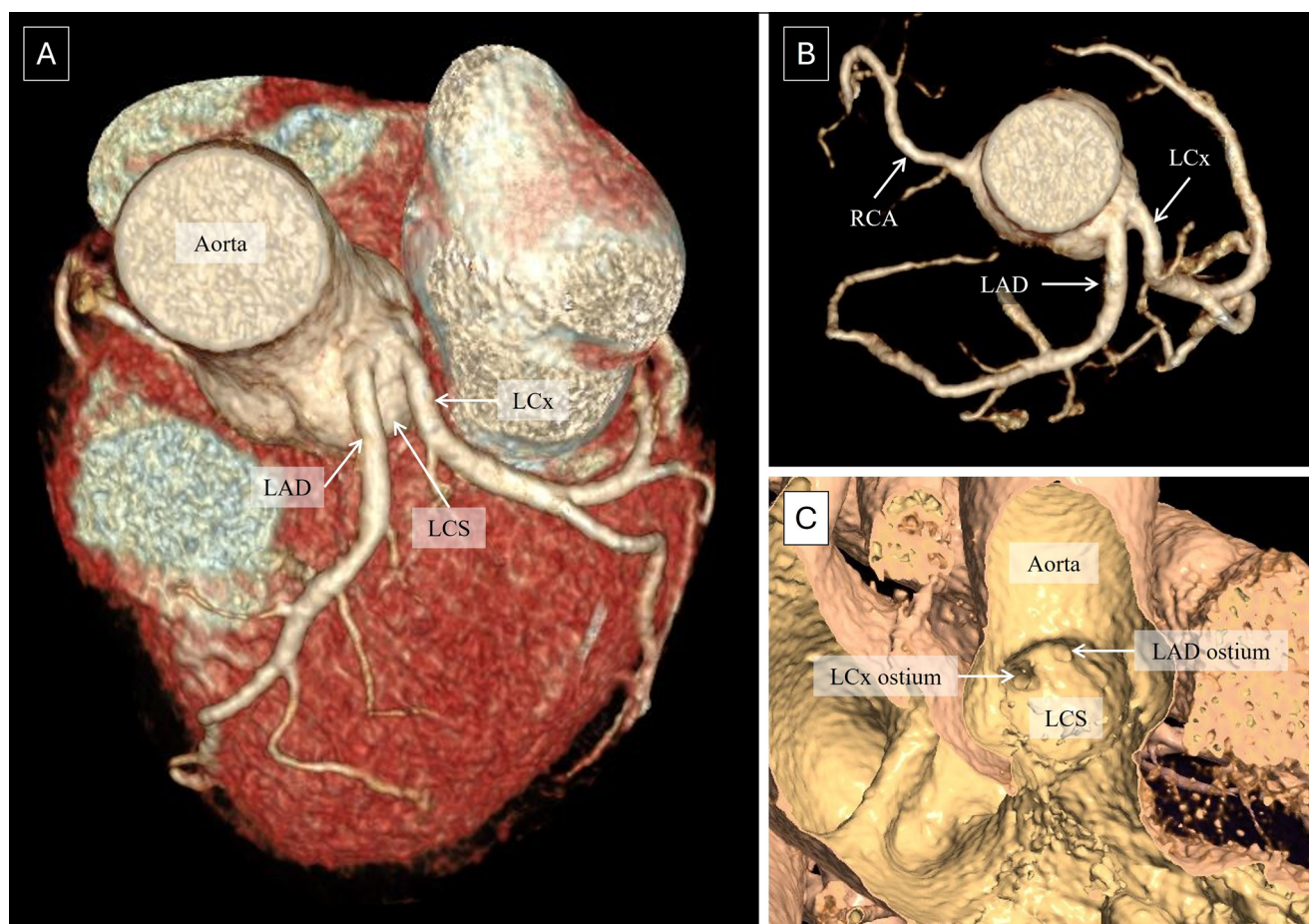


Figure 1 (A, B) Volume-rendered images of coronary computed tomography angiography demonstrate absence of the left main coronary artery segment. The left anterior descending (LAD) artery and the left circumflex (LCx) artery are seen arising directly from the left coronary sinus (LCS) with separate ostia. The right coronary artery (RCA) is seen orthotopically arising from the right coronary sinus. Virtual dissection image **(C)** shows the separate ostia of the left anterior descending (LAD) and left circumflex (LCx) arteries.

A 49-year-old female presented to the cardiology outpatient clinic with complaints of intermittent episodes of atypical chest pain for the past 6 months. No other significant personal or family history was present. Electrocardiogram (ECG) demonstrated normal sinus rhythm, with no indications of myocardial ischemia. The patient underwent ECG-gated coronary computed tomography angiography (CTA) to rule out obstructive coronary artery disease.

The CTA was negative for obstructive coronary artery disease but revealed a rare anomaly of coronary artery origin. The left main coronary artery (LMCA) segment was absent, and the left anterior descending (LAD) and left circumflex (LCx) arteries were arising directly from the left coronary sinus with separate ostia (Figure 1). The right coronary artery was seen orthotopically arising from the right coronary sinus.

Coronary artery anomalies are rare and can include those of anomalous origin, course, or terminations of any of the epicardial coronary arteries.¹ An absent LMCA segment with separate ostia of the LAD and the LCx arteries is extremely rare. While the anomaly is itself asymptomatic, it may have diagnostic implications. For example, in the presence of this anomaly, selective cannulation of the ostia of either the LAD or LCx arteries during catheter angiography may inadvertently lead to a misdiagnosis of occlusion or atresia of the other coronary artery. The multiplanar reconstruction and volume-rendering capabilities of a coronary CTA allow for accurate delineation of such uncommon anatomical anomalies. This case highlights the importance of coronary CTA in identifying coronary artery anomalies and providing guidance for subsequent endovascular or surgical procedures, if necessary, thereby preventing diagnostic or therapeutic misadventures.

COMPETING INTERESTS

The authors have no competing interests to declare.

AUTHOR AFFILIATIONS

Damandeep Singh, MD  orcid.org/0000-0001-6835-1323

Department of Cardiovascular Radiology & Endovascular Interventions, All India Institute of Medical Sciences, New Delhi-110029, India

Niraj Nirmal Pandey, DM  orcid.org/0000-0001-6786-8304

Department of Cardiovascular Radiology & Endovascular

Interventions, All India Institute of Medical Sciences, New Delhi-110029, India

Neeraj Parakh, DM  orcid.org/0000-0002-3463-4613

Department of Cardiology, All India Institute of Medical Sciences, New Delhi-110029, India

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