

Images in Pediatric and Congenital Heart Disease

A Case of Anomalous Left Anterior Descending Coronary Artery from the Pulmonary Artery Combined with Anomalous Right Coronary Artery from the Left Coronary Sinus

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We report a 19 year-old male with no symptoms who was diagnosed as a rare congenital coronary anomaly (CCA). He was previously diagnosed in our

center as a small ventricular septal defect. Routine echocardiography indicated abnormal blood flow into the main pulmonary artery (PA), suggesting CCA.

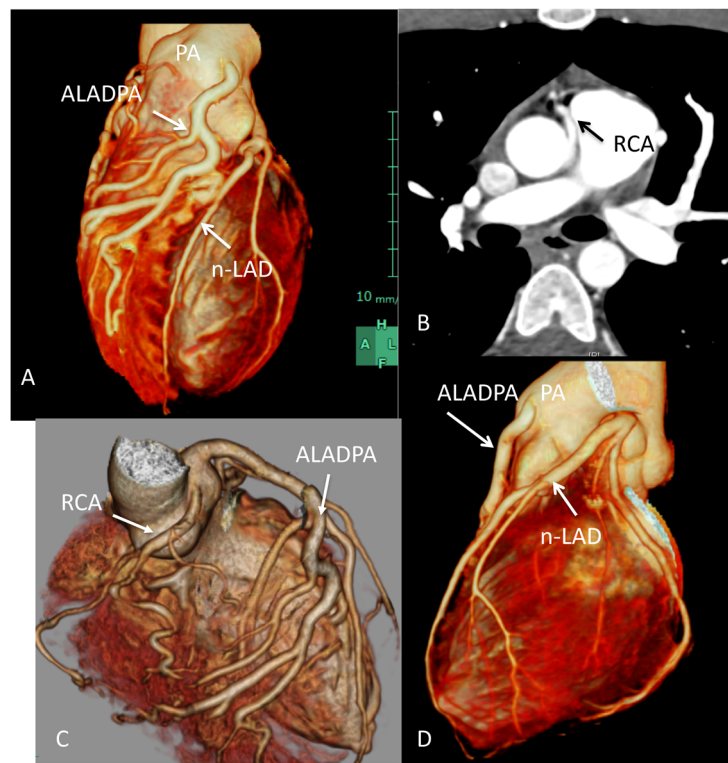


Fig. 1 The multi-slice cardiac computed tomography showing ALADPA and ARCALCS

ALADPA, anomalous left anterior descending from the pulmonary artery; ARCALCS, anomalous right coronary artery originating from the left coronary sinus; RCA, right coronary artery; PA, pulmonary artery; n-LAD, normal left anterior descending.

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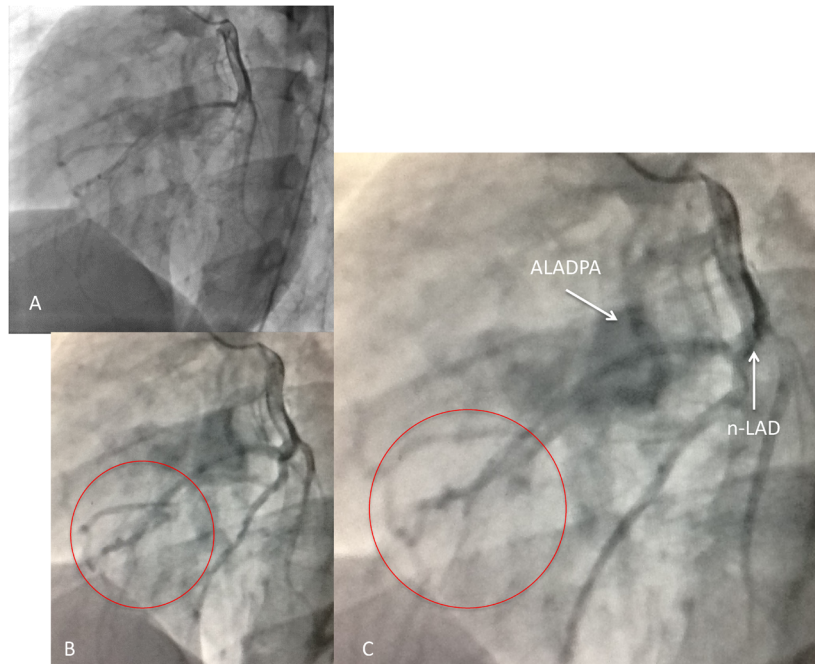


Fig. 2 Left coronary angiography showing ALADPA supplied by collaterals from the n-LAD (red circle)
ALADPA, anomalous left anterior descending from the pulmonary artery; n-LAD, normal left anterior descending.

Electrocardiogram showed no ischemic changes.

The multi-slice cardiac computed tomography (MSCT) showed an anomalous vessel (AV) originating from the PA, and an anomalous right coronary artery originating from the left coronary sinus (ARCALCS) (Fig. 1).

The AV was morphologically similar to the left anterior descending (LAD) artery, and was mildly enlarged and tortuous. It was located on the right side of the anterior interventricular sulcus (AIVS) and sprouted branches to supply the right ventricular wall. These were thought to be the right ventricular branches of the LAD.¹⁾ The normal LAD (n-LAD) originating from the left main coronary artery (LMCA) was smaller than the AV. The n-LAD was located on the left side of the AV along the AIVS and terminated at the cardiac apex. Selective left coronary angiography showed that the blood flow of the AV was supplied by retrograde flow from collaterals of the n-LAD (Fig. 2). These results confirmed that the AV was the anomalous LAD from the PA (ALADPA).

ARCALCS had the separated orifice close to the LMCA and passed the interarterial course. The segments and the branches of ARCALCS were normal for the right coronary artery.

ALADPA is an extremely rare CCA with a frequency of 0.0008%.²⁾ This anomaly may be a cause of sudden

cardiac death, ischemia and heart failure in adults.³⁾ Though our case currently has no symptoms because of the existence of the n-LAD, sufficient collaterals to ALADPA and no event of kinking of ARCALCS, he has a possibility of encountering ischemic events in the future. Thus, routine assessment of myocardial ischemia (e.g. exercise treadmill test or stress imaging) is necessary.

In our case, MSCT was useful for diagnosis.

Conflict of interest

The authors have no conflicts of interest to declare.

Note

Supplementary movies are provided online for this article.

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