

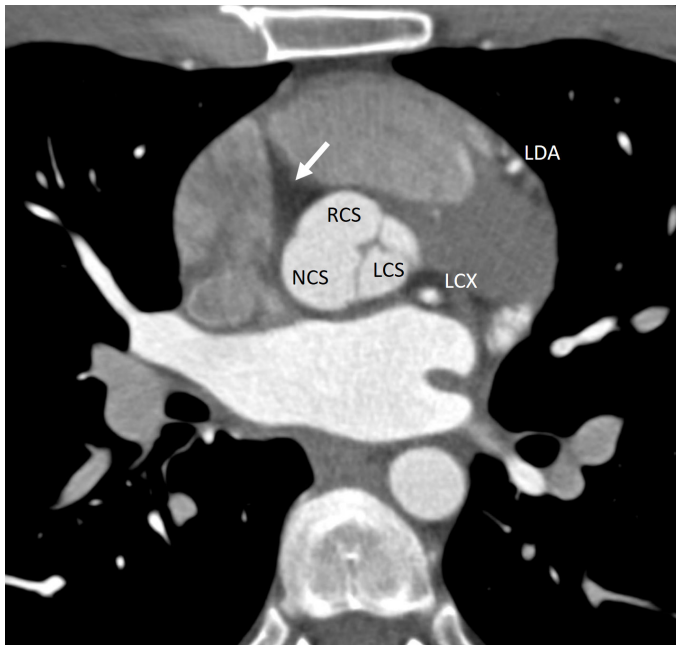
## Right Coronary Artery Agenesis with Superdominant Left Circumflex Artery Diagnosed by CT Angiography

BT Anjiyografi ile Teşhis Edilen Süperdominant Sol  
Sirkumfleks Arter ile Sağ Koroner Arter Agenezisi

### CASE IMAGE OLGU GÖRÜNTÜSÜ

A 29-year-old male soldier was referred for coronary computed tomography angiography (CCTA) to exclude coronary artery disease based on the recent onset of atypical chest pain during sports exercise and equivocal stress ECG. CCTA revealed the absence of a right coronary artery (RCA) and no artery arising from the right or non-coronary sinus of Valsalva (Figure 1), a left anterior descending (LAD) artery with a normal course, and an extraordinary long left circumflex artery (LCX) passing through the right atrioventricular groove supplying the entire RCA territory (Figures 2 and 3). No significant stenosis was found in any of the vessels. These findings were consistent with the diagnosis of congenital absence of right coronary artery (CARCA) supplied by a "superdominant" LCX. In our patient, presenting symptoms were not attributed to this artery variant. Conservative management was decided and the patient remained stable without chest pain at 1-year follow-up.

Single coronary arteries are extremely rare. The current case is compatible with the L-I type of the Lipton angiographic classification of coronary anomalies. The L-I type involves the distal extension of the LCX or LAD coronary artery that controls the myocardium of the RCA distribution and accounts for about 0.003% of reported coronary anomalies. Congenital absence of right coronary artery is usually asymptomatic, especially in young



**Figure 1.** Source images in the axial plane at the level of the aortic root showing an empty right coronary sinus (RCS) (arrow). LCS, left coronary sinus; NCS, non-coronary sinus.

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Received: April 7, 2022

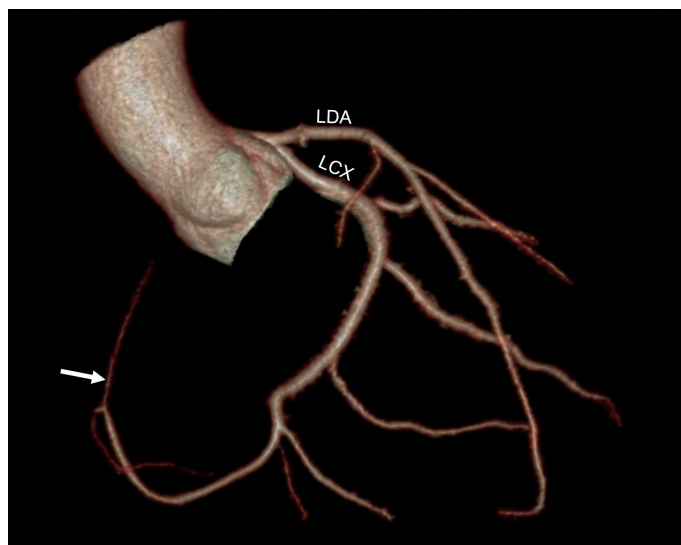
Accepted: April 26, 2022

**Cite this article as:** Le Moigne F,  
Genicon C. Right coronary artery  
agenesis with superdominant left  
circumflex artery diagnosed by CT  
angiography. *Türk Kardiyol Dern Ars.*  
2022;50(5):395-396.

DOI:10.5543/tkda.2022.22431

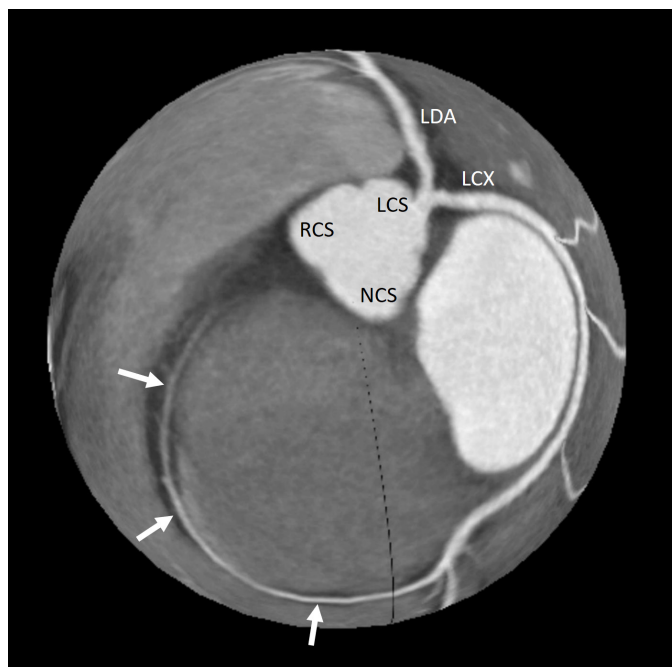


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**Figure 2.** Volume rendered extracted coronary tree in right oblique anterior (ROA) orientation representing the absence of the RCA and the superdominant LCX supplying the territory of RCA (arrow). RCA, right coronary artery.

patients and considered as a benign disorder. However, in certain cases, patients may develop clinical complications, such as acute myocardial ischemia or stable angina concomitant with the development of atherosclerotic disease. The clinical importance of having a super-dominant vessel is the increased dependence of the heart on one vessel, which makes the consequence of its occlusion catastrophic. Currently, there are no proper recommendations on the management of CARCA. Intervention may not be warranted, particularly if there is no evidence of ischemia in the patient.



**Figure 3.** Globe view showing a good overview of the anatomical situation where the LCX course can be recognized running in the inferior atrioventricular groove, then reaching the crux cordis and the up to the right atrioventricular sulcus (arrows). LCX, left circumflex artery.

**Informed Consent:** Verbal informed consent was obtained from the patient.