

## A rare coronary artery anomaly: Left main coronary artery arises from right coronary artery

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### ABSTRACT

The angiographic incidence of coronary anomalies is 0.3-1%. In angiographic series, the incidence of anomalies of the left main coronary artery originating from the right sinus of Valsalva is very low. Relatively few of these patients develop symptoms such as angina pectoris, arrhythmias, syncope, myocardial infarction, or sudden death. We presented an unusual case of a patient with the left main coronary artery anomalously originating from the right sinus of Valsalva.

**Keywords:** Coronary artery anomalies, left main coronary artery, right coronary artery.

Coronary artery anomalies (CAAs) are a diverse group of congenital disorders whose manifestations and pathophysiological mechanisms are highly variable. Most variations are benign; however, some may lead to myocardial ischemia and/or sudden cardiac arrest. We present the case of a patient with anomalous right coronary artery (RCA) circulation who presented to the hospital with chest pain and palpitation.

### CASE REPORT

A 30-year-old female patient was admitted to our hospital with complaints of chest pain and palpitations. It was learned in her history that she had mitral ring annuloplasty three years ago. No pathology was found in electrocardiogram (ECG) and laboratory tests. Echocardiography revealed a normally functioning mitral valve.

In conventional coronary angiography, it was observed that absent left main coronary artery (LMCA) in the left coronary sinus area (Figure 1) and in RCA views show LMCA arises from the RCA (Figure 2).



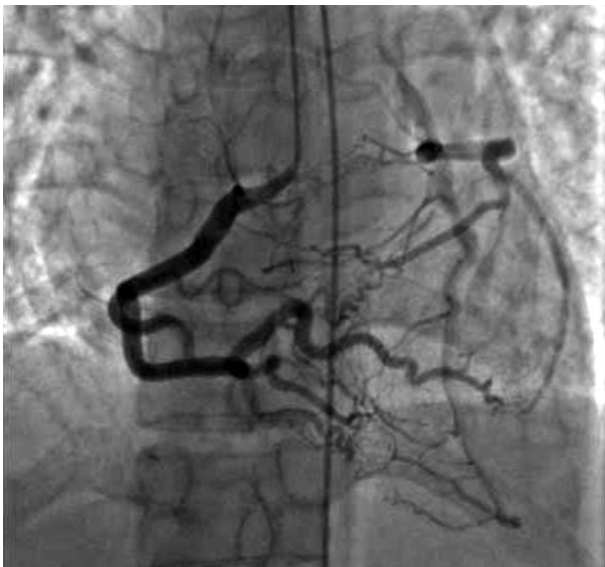
**Figure 1.** Left oblique aortography view shows absent left main coronary artery in the left coronary sinus area.

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**Figure 2.** Left oblique right coronary artery view shows right coronary artery arises from right coronary artery.

## DISCUSSION

Anomalies of the coronary arteries can be found by chance in 0.3 to 1% of healthy individuals.<sup>[1]</sup> The use of coronary angiography is becoming more common every year, and its clinical significance is becoming to be better understood. The majority of CAAs are asymptomatic; nevertheless, other clinical forms and symptoms of CAAs include chest pain, arrhythmia, syncope, and sudden death. In the anomalous situation of a single coronary artery, only one coronary artery arises with a single ostium from the aortic trunk. This is an extremely rare congenital anomaly that is seen in only 0.0024 to 0.044% of the population.<sup>[2]</sup> A single coronary artery may

follow the pattern of a normal RCA or LMCA, divide into two branches with distributions of the RCA and LMCA, or have a different distribution than the normal coronary arterial tree.<sup>[3]</sup> The LMCA arises from the right sinus of Valsalva as a separate vessel or as a branch of a single coronary artery in 0.09 to 0.11% of patients who undergo angiography.<sup>[4]</sup> An interarterial course may be seen in up to 75% of patients with this anomaly,<sup>[4,5]</sup> who are at high risk for sudden cardiac death due to the acute angle of the ostium, the stretch of the intramural segment, and the compression between the commissure of the right and left coronary cusps.

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