Double Right Coronary Artery co-Existing with Separately Originating Left Anterior Descending and Circumflex Arteries

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ABSTRACT

In this case presentation, we describe a patient with an unusual coronary anatomic variance in which separate origins of the left anterior descending (LAD), left circumflex (LCX) and double right coronary artery (RCA).

Key words: *Coronary anomaly, double right coronary artery, left coronary artery with double orifice*

Ayrı olarak çıkan sol ön inen ve sirkumfleks arterin çift sağ koroner arter ile birlikteliği

Burada nadir görülen çift sağ koroner arter ile ayrı orifislerden çıkan sol ön inen arterle sirkumfleks arterin bir hastada birlikte bulunmasını tanımladık.

Anahatar kelimeler: *koroner anomali, çift sağ koroner arter, çift orifisli sol koroner arter*

INTRODUCTION

Coronary artery anomalies occur in approximately in 1-2% of the population (1). Double RCA is a very rare coronary anomaly. Up until now, the number of reported cases of double RCA is not so much (2-10). However, double RCA co-existing with separately originating LAD and LCX were not reported previously. We therefore present a patient with double RCA and separate ostium of the LAD and LCX.

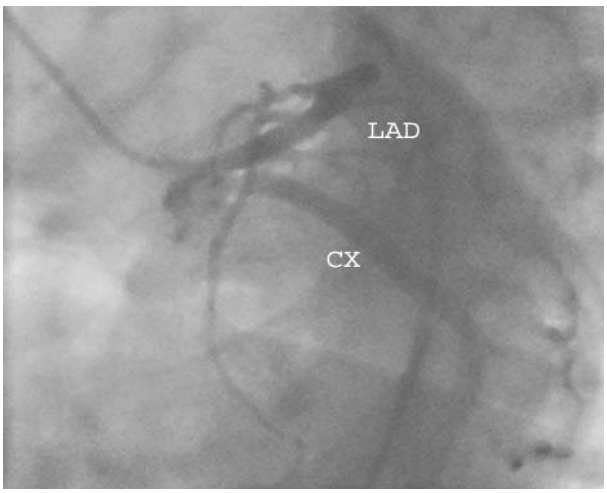

***Figure 1**. Separate but adjacent ostia of the LAD and the CXA from the left coronary aortic sinus of Valsalva*

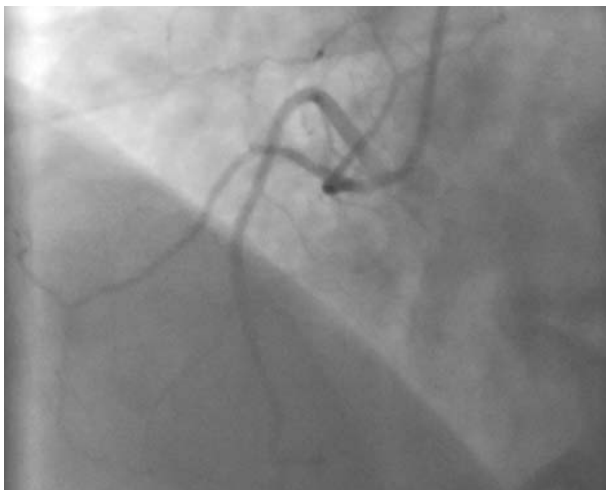

***Figure 2**. Two separate RCAs originating from a single ostium in the right sinus of Valsalva*

CASE

A 59-year-old woman who was admitted to our hospital with the diagnosis of atypical angina pectoris. She had hypertension and type II diabetes mellitus. Phisical examination was normal, blood pressure measured as 110/80 mmHg and pulse rate was 74/min. Electrocardiography showed sinus rhytm with incomplete right bundle branch block and positive T wave in all derivations except for aVR. A myocardial perfusion stress test was performed. And 2,5 mm ST segment depressions were developed in multiple leads and also reversible inferoapical perfusion defect was seen. The patient underwent coronary angiography, which demonstrated the absence of left main, and separate but adjacent ostia of the LAD and the CXA from the left coronary aortic sinus of Valsalva (Figure 1). Injection of radiopaque material into the right sinus revealed two separate RCAs originating from a single ostium in the right sinus of Valsalva (Figure 2).

DISCUSSION

Coronary artery anomalies occur in less than 1 % of the cases undergoing coronary angiography, and constitute 1-2 % of all congenital heart disease (1). Most commonly involved are the anomalies of the left coronary system (2). Double RCA is one of the rarest coronary anomaly which was reported 22 times in the literature so far and reviewed by Sari et al (2).

The split origin of branches of the left coronary artery is a relatively common congenital coronary artery anomaly and is found in 0.41-1% of patients (1,6). However, splitting of LAD and CXA have been reported more frequently in the literature than double RCA. Most patients with coronary artery anomalies are free of symptoms (5), with the abnormality demonstrated as an incidental finding after coronary angiography for suspected coronary artery disease.

In a series of 126 595 patients who underwent coronary angiography, there is no mention about this congenital abnormality (1). In a retrospective analysis of the angiographic data of 5253 consecutive adult patients in a Turkish population, only 5 (0.09%) had anomalous origin of right coronary artery, either from left coronary ostium (0.03%) or from above left coronary ostium (0.06%) (6). As Sari et al. (2) and Tatli et al.(9) mentioned in their papers, interestingly 15 of 22 cases were reported from Turkey. Geographic variations in the frequency of different coronary anomalies are well known (10). The reason might be because either double RCA is seen more frequently in Turkey than the others, or physicians in the other countries define this issue as high take off of a large right ventricular branch.

Although double RCA is generally considered as a benign entity, it might be atherosclerotic and can cause acute coronary syndromes including myocardial infarction, sudden death and be associated with other anomalies. It is predominantly seen in males and might origin from

either single or separate ostia. Although coronary angiography is the most widely used diagnostic modality, MDCT might also be helpful (2-10).

In conclusion, although double RCA itself has been reported previously, co-existing with separately originating LAD and LCX were not reported previously.

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