

## **Aterosklerotik sol sirkumfleks koroner anomalisinin neden olduğu miyokard infarktüsü: vaka sunumu**

**Recep DEMIRBAG, Remzi YILMAZ, Mustafa GUR**

Harran University, Faculty of Medicine, Department of Cardiology, Şanlıurfa, Turkey

### **ÖZET**

Miyokard iskemisine neden olmayan koroner arter anomalileri genellikle masum kabul edilir. Sirkumfleks koroner arterin sağ sinüs Valsalva'dan çıkması bu arterin en sık görülen anatomik varyasyonudur. Bu makalede inferior miyokard infarktüsü geçirmiş, istirahat anjinası olan ve koronar anjiyografisinde oldukça seyrek rastlanan aterosklerotik lezyonlu sirkumfleks koroner arter anomalili, 68 yaşında bir bayan olgu tartışıldı.

**Anahtar kelimeler:** Koroner anomali, miyokard infarktüsü

### **Myocardial infarction caused by the circumflex coronary artery anomaly with atherosclerosis: a case report**

#### **ABSTRACT**

Coronary artery anomalies that are not causing myocardial ischemia are usually considered benign. Origin of the left circumflex coronary artery from the right sinus of Valsalva is the most common anatomic variation of this coronary artery. We reported an unusual case of a 68-years-old female patient with prior inferior myocardial infarction, symptom of angina at rest, and anomalous of the left circumflex coronary artery originated from right sinus of Valsalva with obstructive atherosclerotic coronary lesion in coronary angiography.

**Key words:** Myocardial infarction, coronary artery anomaly.

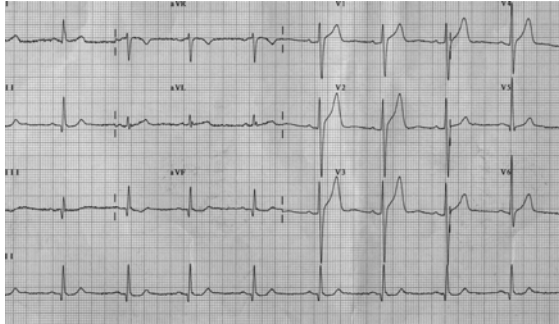
#### **INTRODUCTION**

Origin of the left circumflex coronary artery (LCCA) from the right sinus of Valsalva (RSV) is the most common anatomic variation of this coronary artery. The incidence of this anomaly is 0.20% to 0.71% in reported series (1-3). An anomalous origin of the circumflex coronary artery, which is not causing myocardial ischemia, is usually considered benign (4). If the left circumflex coronary artery passes between aorta and pulmonary artery, symptoms of angina, congestive heart failure, arrhythmias, myocardial infarction (MI), syncope and cardiac arrest, may exist without any atherosclerotic involvement (4). MI development due to stenosis in proximal LCCA coming from right sinus Valsalva has been reported in a few cases (3-6). In this study, we have presented a case with prior inferior MI due to an anomalous LCCA with at the atherosclerotic lesion and originated from RSV.

#### **CASE REPORT**

A-68-years old female patient in postmenopausal period, having a history of hypertension, with no diabetes, smoking a packet of cigarette a day for twenty years and experienced an inferior MI 10 days earlier was hospitalized in our clinic with the diagnosis of post MI angina. Physical examination revealed blood pressure 140-80 mmHg and pulse 75/min; the other findings were observed to be normal. Her electrocardiogram showed a QS pattern together with straightened T in leads DII, DIII and AVF (Figure-1). Myocardial enzyme levels were in normal range on admission. Echocardiography revealed hypokinesia of the left ventricular posterobasal and inferior wall. Based on the results of the examinations, the patient was diagnosed as having a prior inferior MI and unstable angina. Coronary angiography was applied by femoral approach techniques. The right and the left-descending coronary artery were found

to be lumenographically normal. However, the LCCA was observed to be dominant, coming out of RSV, and a 80% of eccentric stenosis was seen in its proximal (Figure-2). Left ventriculography showed hypokinesia of the left ventricular inferior, posterobasal and posterolateral segments, and the other segments were normal. Angioplasty was recommended but the patient did not want this procedure. The patient was discharged with conservative medical therapy.



**Figure 1.** The electrocardiogram of the present case shows QS pattern together with straightened T in leads DII, DIII and AVF.



**Figure 2.** Right anterior oblique coronary angiographic view in which the origin of the circumflex artery in the coronary sinus is visible

## DISCUSSION

The incidences of coronary anomalies have been found in various angiographic series as 0.6% to 1.55% of all patients undergoing coronary angiography (3, 6-8). These anomalies have congenital origin, but generally have not characteristic

symptoms and complications. Therefore, most coronary arteries anomalies are discovered incidentally during coronary arteriography or in autopsy (3, 7, 8). In the previous studies, coronary anomalies were considered to be a normal variant rather than a coronary anomaly (8). Origin of the left circumflex coronary artery from the right sinus of Valsalva is one of the most common anatomic variations of the coronary artery circulation (3, 5, 7, 9). Its course is always retroaortic or between the great arteries (10). Anomalous origin of a coronary artery from the opposite aortic sinus that lies between the great arteries has been associated with sudden death. The artery is thought to be compressed because of the acute angle of vessel takeoff and aortic root expansion during exercise (10). No specific pathologic feature predictive of sudden death was found in the studies for these abnormalities. Retroaortic course of the circumflex coronary artery is usually a benign or incidental finding without consequence and can be insidious throughout a life span (10).

In the previous studies a few cases with inferior MI associated with an obstructive lesion in the lumen of an anomalous LCCA have been reported (5). Barriales Willa et al (6) reported a case with an obstructive stenosis in the distal of LCCA coming out of the RSV and manifesting itself with angina, but without MI. In the present case, there was prior inferior MI. The patient was evaluated as having post MI angina due to the chest pain occurring after acute MI. Coronary angiography showed an abnormal origin of the left circumflex artery from the RSV with retroaortic course and dominance. There was 80% stenosis in proximal LCCA. Our case is distinguished from the other cases with respect she had a history of inferior MI and a dominant LCCA coming out of RSV with proximal stenosis.

In the light of all this findings, we conclude that anomalous LCCA with

atherosclerotic involvement can produce myocardial ischemia and infarction.

## REFERENCES

1. Baltaxe HA, Wixson D. The incidence of congenital anomalies of the coronary arteries in the adult population. *Radiology*, 1977; 122: 47-52.
2. Engel HJ, Torres C, Page HL Jr. Major variations in anatomical origin of the coronary arteries: angiographic observations in 4,250 patients without associated congenital heart disease. *Cathet Cardiovasc Diagn*, 1975; 1: 157-69.
3. Ueyama K, Ramchandani M, Beall AC, et al. Diagnosis and operation for anomalous circumflex coronary artery. *Ann Thorac Surg*, 1997; 63: 377-81.
4. Rozenman Y, Schechter D, Gilon D, Gotsman MS. Anomalous origin of the circumflex coronary artery from the right sinus of Valsalva as a cause of ischemia at old age. *Clin Cardiol*, 1993; 16: 900-1.
5. Wilkins CE, Betancourt B, Mathur VS, et al. Coronary artery anomalies: a review of more than 10,000 patients from the Clayton Cardiovascular Laboratories. *Tex Heart Inst J*, 1988; 15: 166-73.
6. Barriales Villa R, Diaz Molina B, Arias Castano JC, et al. Myocardial ischemia caused by an anomalous circumflex coronary artery. *Rev Esp Cardiol*, 2002; 55: 200-2.
7. Yamanaka O, Hobbs RE. Coronary artery anomalies in 126595 patients undergoing coronary arteriography. *Cathet Cardiovasc Diagn*, 1990; 21: 28-40.
8. Felmeden D, Singh SP, Lip GY. Anomalous coronary arteries of aortic origin. *Int J Clin Pract*, 2000; 54: 390-4.
9. Kimbiris D, Iskandrian AS, Segal BL, Bemis CE. Anomalous aortic origin of coronary arteries. *Circulation*, 1978; 58: 606-15.
10. Veinot JP, Acharya VC, and Bedard P. Compression of anomalous circumflex coronary artery by a prosthetic valve ring. *Ann Thorac Surg*, 1998; 66: 2093-4.

**Yazışma adresi:** Dr. Recep Demirbağ  
PK: 112, 63200 Şanlıurfa  
Tlf. :90-414-3141170  
GSM :90-505-6247560  
E-mail :rdemirbag@yahoo.com  
Fax :90-414-3129785