

Isolated Single Coronary Artery Originating From A Single Right Coronary Ostium in A Patient with Non ST-Segment Elevation Myocardial Infarction

*ST Elevasyonsuz Miyokard İnfarktüsülü Hastada Sağ Koroner Ostiumun'dan
Kaynaklanan İzole Tek Koroner Arter*

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ABSTRACT

Single coronary artery is a rare congenital anomaly. In case of left main artery traveling between aorta and pulmonary artery sudden death can be occurred, although this does not usually effect coronary flow. We present a 63-year-old woman whose coronary angiography for typical chest pain revealed an isolated single coronary artery. On coronary angiography, the whole coronary system originated by a single trunk from the right sinus of Valsalva. A significant flow-limiting lesion was found in the right coronary artery that was successfully treated with percutaneous coronary intervention.

Keywords: Coronary vessel anomalies; coronary artery disease; myocardial infarction

ÖZET

Tek koroner arter, oldukça nadir rastlanan konjenital bir anomalidir. Genellikle koroner kan akımını etkilememekle birlikte sol ana koroner arterin aort ile pulmoner arter arasında seyrettiği durumlarda ani ölüm görülebilir. Biz tipik göğüs ağrısı nedeniyle koroner anjiyografi yapılan 63 yaşındaki bayan hastada ortaya çıkan izole tek koroner arteri sunduk. Koroner angiografide, tüm koroner sistem tek gövde halinde sağ sinüs valsalvadan çıkıyordu. Sağ koroner arterde tesbit edilen akımı kısıtlayan önemli darlık perkütan koroner girişimle başarılı bir şekilde tedavi edildi.

Anahtar Kelimeler: Koroner damar anomalileri; koroner arter hastalığı; miyokard infarktüsü

INTRODUCTION

Anomalous origin of the left main coronary artery from the right sinus of Valsalva is extremely rare when not associated with other congenital cardiac anomalies and may be associated with sudden cardiac death after exercise and angina. In this report we present a patient with a single coronary ostium, with both the left and right coronary artery (RCA) systems arising from it and then following their usual courses. The RCA was found to contain a significant flow-limiting lesion that was successfully treated with percutaneous coronary intervention (PCI).

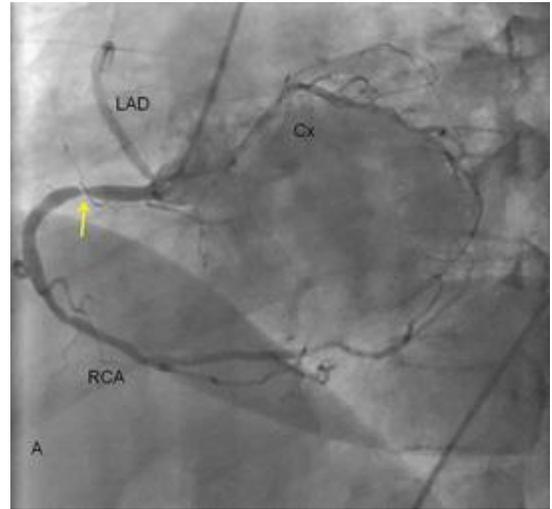
CASE REPORT

A 63-year-old woman was admitted to emergency department because of severe chest pain of sudden onset. The patient had several coronary risk factors including age, hypertension, and dyslipidemia. Physical examination revealed no pathological findings other than increased blood pressure. Her blood pressure was 160/90 mmHg, and heart rate was regular with a mean of 70 beat/minute. Baseline ECG showed ST-T changes in V2-V4. Transthoracic echocardiography was unremarkable with no regional wall motion abnormalities at rest. However, cardiac

troponin was elevated suggesting acute coronary syndrome. The clinical presentation was suggestive of a non-ST elevation acute coronary syndrome and the patient underwent coronary angiography revealing a single coronary artery originating from the right sinus of Valsalva, a rare coronary anomaly, combined with coronary artery disease, with subtotal stenoses (%80) of the proximal portion-right coronary artery (RCA) and noncritical occlusion in the proximal-portion- left anterior descending artery(LAD) and portion of the circumflex artery (Cx) (Figure 1A). Direct stenting was performed successfully with 4,5 × 16 mm bare metal stent at 12 atm (Figure 1B). The procedure was uneventful and the patient is doing very well and is asymptomatic at the recent clinical follow up.

DISCUSSION

Many congenital coronary artery anomalies are asymptomatic and are only incidentally found during routine angiography (1). Isolated single coronary artery anomaly is one of the most rarely seen coronary anomalies and constitutes 2-4% of all coronary artery anomalies. Single coronary artery anomalies are classified according to the site of origin from the left and right coronary arteries, anatomical distribution on the ventricular surface, and according to its relationship with the ascending aorta and the pulmonary artery (2). Despite the relatively low incidence of atherosclerotic heart diseases in young patients with coronary anomalies compared to their elder counterparts, exertional or spontaneous sudden death is more common (3). The prognosis in patients with single coronary varies according to the anatomic distribution. If the left main coronary artery travels between the aorta and pulmonary arteries, it may be a cause of sudden cardiac death in young males especially during or immediately after heavy physical exercise (4). While the prognosis may be very good in some patients, sudden death may be observed in others, whereas about 15% of patients become asymptomatic from severe heart diseases before the age of 40. The mortality rate of patients with left coronary artery originating from the right coronary sinus before the age of 20 years is very high (59%) (5). There is no consensus regarding the risk for atherosclerosis in single coronary artery cases. The literature includes variable reports. Porto et al claim that there is an increased risk of atherosclerosis in the case of a single coronary artery, which may result from acute-angle take-off malformation (6). Coronary spasm, angina pectoris, and myocardial infarction are



Şekil I A: The left main coronary artery does not originate from left coronary sinus, where it originates from the right coronary artery. The 80% subtotal stenosis of right coronary artery is demonstrated (yellow arrow).



Şekil I B: The right coronary artery after a direct stent implantation and the percutaneous transluminal coronary angioplasty.

also reported in the absence of coronary stenosis (7). Gleeson et al have reported a patient with single coronary artery from the right aortic sinus of Valsalva who had significant lesions in right coronary arteries and was treated successfully by PCI (8).

We describe a rare case of a patient who had an anomaly of the left and right coronary arteries with a single coronary ostium in the right sinus of Valsalva, in which percutaneous coronary intervention was successfully performed to the right coronary artery. Coronary angioplasty with stenting may be a feasible

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therapeutic option for a single anomalous coronary artery. However, the operator should be aware of the potential risk of complications and the limitations of the procedure.

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