Case Report / *Olgu Sunumu*

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Coronary Intervention for Acute Myocardial Infarction in a Patient with Left Main Coronary Artery Arising from the Right Aortic Sinus

Sol Ana Koroner Arteri Sağ Aortik Sinüsten Çıkan Akut Miyokard İnfarktüslü Bir Olguya Uygulanan Perkütan Koroner Girişim

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Abstract

Here, we present the case of primary percutaneous coronary intervention (PPCI) in a patient with a single coronary artery arising from the right aortic sinus. The prevalence of of coronary anomalies has been reported to be 1.3%. Anomalous origin of the left main coronary artery (LMCA) arising from the right sinus of Valsalva is extremely rare, occurring in approximately 0.019% of angiographic series. Percutaneous coronary intervention for acute myocardial infarction in these patients is very important and requires experience. We report the rare case of a patient with single coronary ostium who underwent a successful coronary stenting procedure for acute inferior wall myocardial infarction with right ventricular involvement. *(The Medical Bulletin of Haseki 2013; 51: 79-81)*

Key Words: Coronary artery anomaly, multislice computed tomography, primary percutaneous coronary intervention

Özet

Koroner arter anomalilerinin anjiyografik serilerde sıklığı %1,3 olarak saptanmıştır. Sol ana koroner arterin sağ aortik sinüsten çıkma sıklığı çok daha nadir olarak saptanmış ve %0,019 olarak rapor edilmiştir. Bu vakalarda akut miyokard infarktüsü sırasında yapılacak olan perkütan koroner girişim çok daha fazla önem arz etmekte ve deneyim gerektirmektedir. Sol ana ve sağ koroner arterleri aynı ostiumdan çıkan ve akut inferior ve sağ miyokard infarktüsüyle tanısıyla başarılı primer perkütan koroner girişim uygulanan vaka sunulmuştur. *(Haseki Tıp Bülteni 2013; 51: 79-81)*

Anahtar Kelimeler: Çok kesitli bilgisayarlı tomografi, koroner arter anomalileri, perkutan koroner girişim

Introduction

Left main coronary artery (LMCA) arising from the right sinus of Valsalva as a single coronary ostium is an extremely rare anatomic anomaly occurring in approximately 0.019% of angiographic series (1). Coronary artery anomalies (CAA) are usually asymptomatic and associated with other cardiac malformations, but rarely can cause myocardial ischemia, infarction, syncope, and sudden death (2). The most commonly detected clinical risk is syncope, that is due to an ectopic coronary artery arising from an inappropriate sinus of Valsalva and passing through the space between the aorta and pulmonary trunk (2). The presence and course of an CAA should be determined during coronary angiography, thus, clinical risk can be estimated and the strategy of coronary angioplasty can be planned. Here, we describe the case of a single ostium in the right sinus of Valsalva that gives rise to the right coronary artery (RCA), the left anterior descending (LAD) and the circumflex arteries (CX). The patient who had inferior wall myocardial infarction with right ventricular involvement, underwent coronary angioplasty for the treatment of total occlusion of the RCA.

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8. Kardiyoloji ve Kalp Damar Cerrahisinde Yenilikler Kongresi

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Case

A 59-year–old man with a history of type 2 diabetes mellitus and hypercholesterolemia was admitted to our hospital with acute inferior wall myocardial infarction with right ventricular involvement.

On physical examination, general health situation was moderate. His heart rate was 78 bpm and blood pressure was 100/70 mmHg. First and second heart sounds were normal. There was no additional heart sound or murmur. Other system examinations were unremarkable. Acetyl-salicylic acid, clopidogrel and heparin were immediately ordered. Coronary angiography was performed through transfemoral approach and showed absence of the left coronary ostium. Selective contrast injection of the right coronary sinus demonstrated that the entire coronary circulation was originating from a single ostium with a common main stem bifurcating into LMCA and RCA. Total occlusion of the proximal segment of the RCA was observed. LAD and CX artery was without any lesion. Primary percutaneous coronary intervention(PCI) was performed to the proximal segment of the RCA using a Judkins right guiding catheter (7F JR 4 Cordis Europe, Roden, Holland) and the lesion crossed with a balanced middle weight wire. After thrombus aspiration (Driver C.E.MAX), a 3.5x12 mm stent (Ephesos, Alvimedica, Turkey) was implanted at 20 atm with an excellent angiographic result (Figure 1, 2). The patient's chest pain was resolved after the procedure and he was discharged 5 days after coronary stenting without any cardiac adverse event. Multislice computed tomography (MSCT) was performed using a 64-slice machine after coronary angiography to confirm these findings and to investigate the possible involvement of pulmonary artery and aorta ascendens. LMCA arising from the right aortic sinus and passing anterior to the pulmonary trunk was detected (Figure 3, 4). Since this anomaly was considered benign, surgical intervention was performed. On transthoracic echocardiography, all heart dimensions and valves were normal. Inferobasal and mid hypokinesi. were detected. The ejection fraction (EF) was 50%. The patient is currently being followed without any problem.

Discussion

Anomalous origin of the LMCA from the right aortic sinus is a rare condition, and is usually asymptomatic. The clinical significance of a single coronary artery is mainly dependent on its course relative to the great arteries. A route anterior or posterior to the pulmonary artery does not result in a significant mechanical compression and is usually benign (1). Extrinsic compression between the aorta ascendens and pulmonary artery, especially during exercise, produce angina, myocardial infarction, syncope or sudden cardiac death in 20% of these patients in whom surgical treatment is necessary (3-6). MSCT has a role to show the relationship between the course of the coronary arteries and the great vessels (7).

Patients with anomalous coronary arteries have the same or an increased risk of atherosclerotic disease compared to those with normal coronary arteries (8).

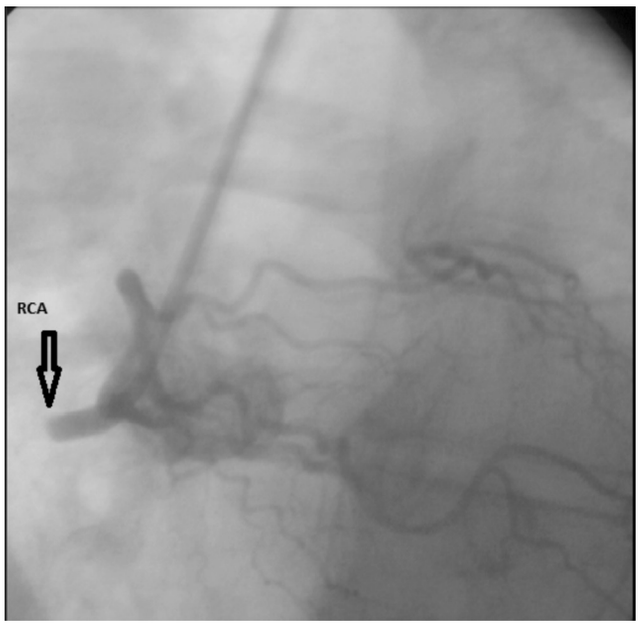

Figure 1. Total occlusion proximal segment of RCA . LAD and CX artery was without any lesion

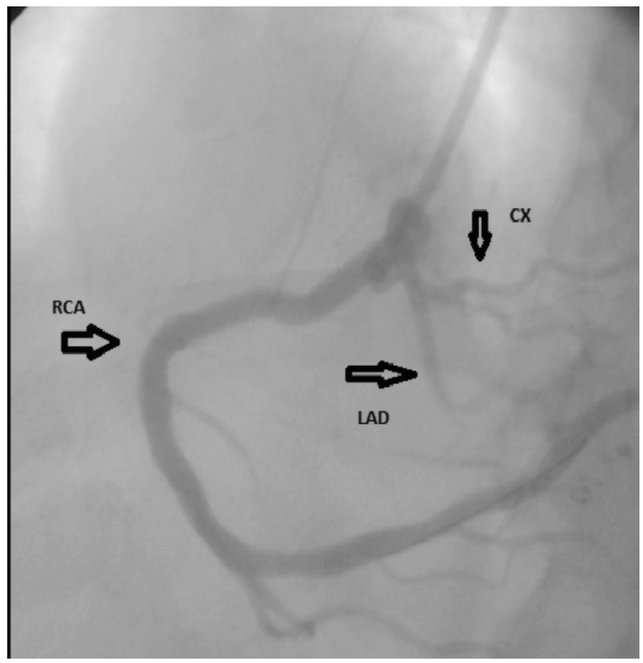

Figure 2. Opened RCA after succesfull PCI

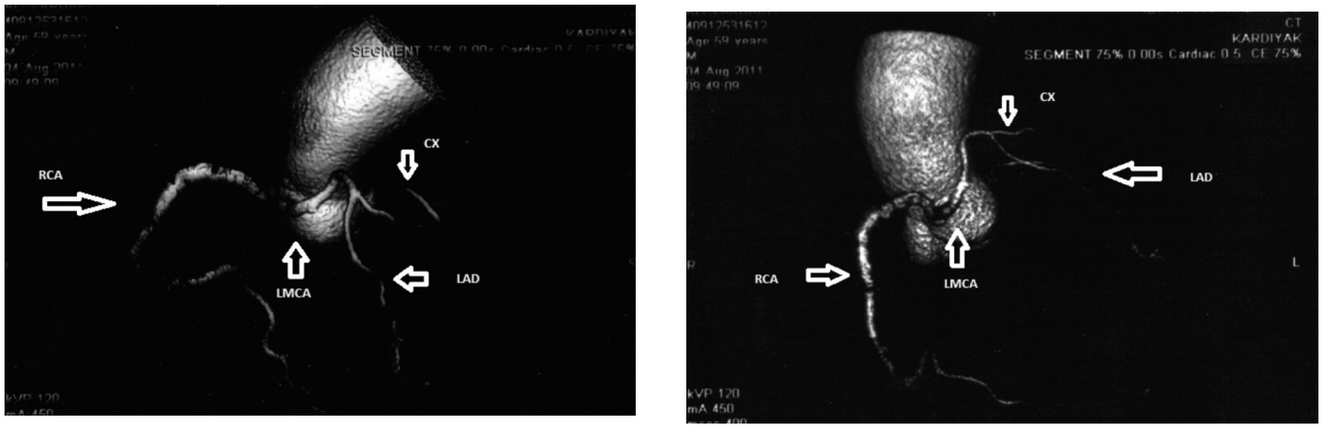

Figure 3, 4. Left main coronary artery arising from the right sinus, multislice computed tomography images

Coronary angiography is the best method for detecting coronary artery anomalies. A succesful PCI in patients with coronary artery anomalies, especially in an acute mycardial infarction (AMI) is more rare and difficult. Only a few reports have described angioplasty of a single anomalous coronary artery in a patient with AMI. The procedural risk of PTCA is very high, because dissection of the ostium and occlusion of the single main stem may result in fatal complications. The most important factor contributing to the success of PTCA in anomalous arteries is guiding catheter support. Also an increase in using contrast agent because of prolonging procedure time and cannulation of an anomalous coronary artery are the other important procedural factors.

In conclusion, a single coronary artery arising from the right aortic sinus is a very rare anomaly and is usually asymtomatic, but unusual techniques might be required for percutaneous coronary intervention. Therefore, complications and risk factors of procedure must be known by the interventional cardiologists. The coronary anomaly reported here is one of the rarest in the literature, that the patient presented with a clinical setting of ST segment elevation myocardial infarction.

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