

Letter to the Editor

Anomalous origin of the left coronary artery from the right sinus of Valsalva in a 62-year-old woman with unstable angina pectoris: A case report

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Received 11 July 2008; accepted 30 November 2008

Available online 13 January 2009

Abstract

Anomalous origin of the left coronary artery from the right sinus of Valsalva is a rare congenital coronary anomaly. We report a case of a 62-year-old woman with a history of hypertension, diabetes type 2 and hypercholesterolemia who was admitted to the local hospital because of unstable angina pectoris. Coronary angiography was performed revealing the anomalous left main coronary artery arising from a single ostium in the right sinus of Valsalva together with the right coronary artery which showed a 90% proximal stenosis. The patient was referred to our hospital for further management. Multislice computed tomography (MSCT) coronary angiography confirmed these findings and determined coursing of the anomalous left coronary artery anterior to the pulmonary trunk. The proximal RCA lesion was successfully treated with direct stenting. She is asymptomatic on clinical follow-up at 18 months.

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Keywords: Coronary artery anomalies; Coronary artery disease; Coronary angiography; Coronary stent

1. Introduction

The incidence of coronary artery anomalies has been reported between 0.6 to 1.3% in angiographic series and 0.3% in autopsy series. Anomalous origin of the left main coronary artery from the right sinus of Valsalva represents a small fraction of these anomalies. This rare anomaly correlates with sudden cardiac death after exercise and angina [1]. We present a case of a 62-year-old symptomatic woman with anomalous origin of the left coronary artery from the right sinus of Valsalva. In addition, a 90% proximal stenosis of RCA was detected which was related to the patients' symptoms of unstable angina. Successful PCI with

stenting of the RCA was performed. The patient had no more symptoms of angina after procedure.

2. Case report

A 62-year-old woman with prior history of hypertension, diabetes type 2 and hypercholesterolemia was admitted to the local hospital because of unstable angina pectoris. Her symptoms had begun one month before admission. Coronary angiography was performed revealing anomalous left main coronary artery arising from a single ostium in the right sinus of Valsalva, in addition, a 90% proximal stenosis of RCA was detected (Fig. 1). Her symptoms worsened in the preceding month and she was referred to the Institute of Cardiovascular Diseases in our hospital for PCI. She was on aspirin, beta-blocker, calcium channel blocker, long acting nitrate, statin and glibenclamide. On admission she was hypertensive 155/80 mmHg with a regular pulse of

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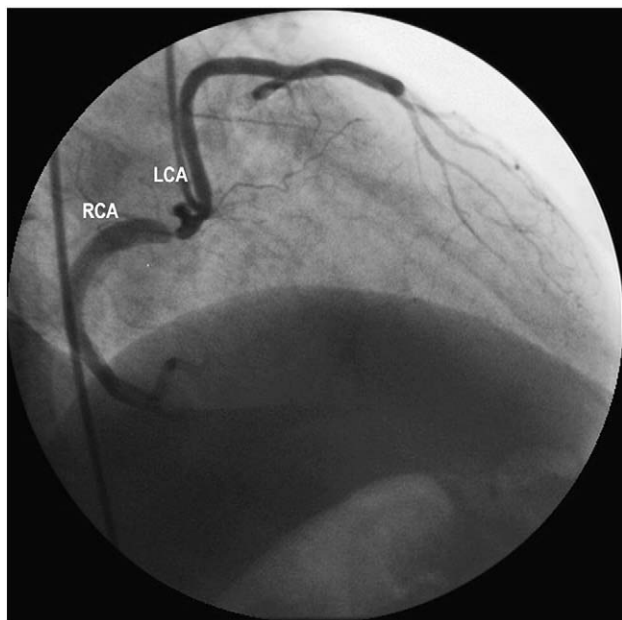


Fig. 1. Coronary angiography showing origin of the left coronary artery (LCA) from the right sinus of Valsalva and a 90% stenosis of the proximal right coronary artery (RCA).

80 bpm. Cardiac auscultation was unremarkable and the chest was clear. The ECG showed sinus rhythm at 80 bpm with no significant ST-segment changes.

Coronary angiography was performed from the standard right femoral approach. The presence of an anomalous origin of the left coronary artery from the right sinus of Valsalva

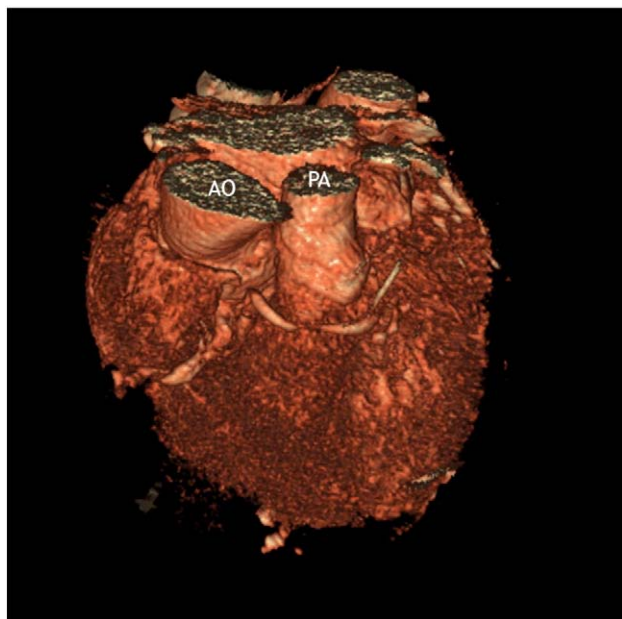


Fig. 2. MSCT showing anomalous origin of the left coronary artery from the right sinus of Valsalva and coursing anterior to the pulmonary trunk. (AO = aorta; PA = pulmonary artery).

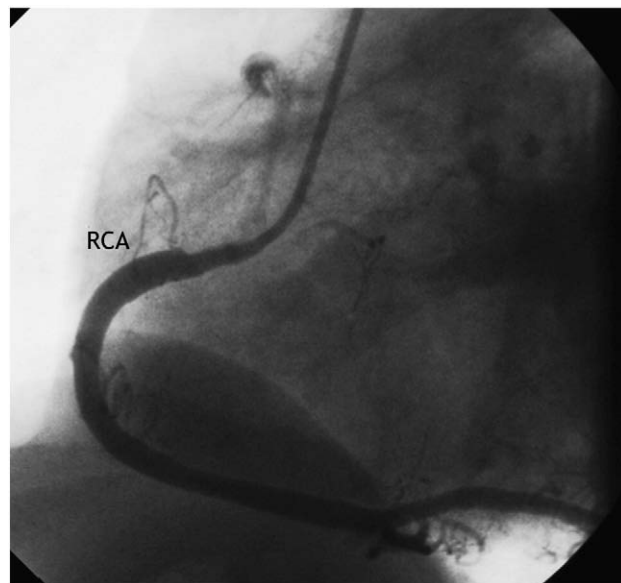


Fig. 3. Coronary angiography after PTCA and stent implantation showing no residual stenosis of the proximal right coronary artery (RCA).

together with the 90% proximal stenosis of RCA was confirmed. MSCT coronary angiography used for further evaluation determined the anomalous course of the left coronary artery anterior to the pulmonary trunk. It was decided to perform PCI of the RCA lesion (Fig. 2). A 6 French Judkins right guiding catheter (Medtronic, Inc., Minneapolis, MN, USA) was placed in the right coronary artery. A 4.0 × 15 mm Tsunami bare metal stent (Terumo Corporation, Tokyo, Japan) was directly implanted in the place of the lesion with optimal angiographic result (Fig. 3). After intervention the patients had no more symptoms of angina pectoris. Three-month angiographic follow-up showed no restenosis. On clinical follow-up after 18 months the patient is asymptomatic.

3. Discussion

The incidence of coronary artery anomalies has been reported between 0.6 to 1.3% in angiographic series and 0.3% in autopsy series. Anomalous origin of the left main coronary artery from the right sinus of Valsalva represents a small fraction (1.3%) of these anomalies with reported prevalence of 0.017% to 0.03% according to angiography studies [1,2]. According to literature this anomaly is related to a higher incidence of sudden death during or shortly after exercise. The anomalous origin of LCA from the right sinus of Valsalva is not always associated with symptoms of angina pectoris, rather it depends on the relation of the anomalous left coronary artery to the aorta and pulmonary artery. The interarterial course of the LCA, between the aortic root and the pulmonary artery trunk, correlates with higher incidence of angina, syncope and sudden death [3]. Other anatomic variants including retro-aortic course of the anomalous LCA, right ventricle free wall course and septal

course, along the floor of the right ventricle, are considered benign [4].

The treatment with PCI or surgical intervention is indicated in symptomatic patients or if the anomaly is detected at an early age [4]. The ideal imaging tool for the diagnosis and delineation of coronary artery anomalies is coronary angiography. Other imaging modalities including computed tomography, magnetic resonance imaging and transesophageal echocardiography are considered to have a complementary role according to recent studies [5,6]. In our case MSCT was used to determine the course of the anomalous left coronary artery. The anomalous left coronary artery passing anterior to the pulmonary trunk (anterior type) was detected. This anatomic variation is considered benign and does not require surgical intervention.

Anomalous coronary arteries do not appear to be associated with an increased risk for development of coronary atherosclerosis [7]. Some patients with this anomaly have symptoms of angina pectoris due to atherosclerosis of the normally arising coronary artery as was the case in our patient. The presence of an anomalous LCA is usually detected if symptomatic due to stenosis or occlusion of the anomalous vessel or equivalent changes in the right coronary artery. In our patient the anomalous LCA was without atherosclerotic lesions while the severe stenosis of RCA was treated with direct stenting with a bare metal stent. The treatment option for patients with anomalous LCA and significant stenotic lesions is coronary angioplasty and stent implantation or surgical intervention. The therapeutic choice depends on the site and character of the lesion.

Acknowledgement

The authors of this manuscript have certified that they comply with the Principles of Ethical Publishing in the International Journal of Cardiology [8].

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