



ELSEVIER

Contents lists available at ScienceDirect

Journal of Cardiology Cases

journal homepage: www.elsevier.com/locate/jccase

Case Report

Complex single ostium coronary artery from the right coronary sinus with unique course of anomalous left circumflex coronary artery

Yukitaka Shizukuda (MD, PhD)^{a,b,*}, Elsayed Abo-Salem (MD)^a, Tarek Helmy (MD)^{a,b}^a Division of Cardiovascular Health and Disease, Department of Internal Medicine University of Cincinnati, Cincinnati, OH, USA^b Cincinnati VA Medical Center, Cincinnati, OH, USA

ARTICLE INFO

Article history:

Received 20 July 2015

Received in revised form 15 September 2015

Accepted 12 October 2015

Keywords:

Single ostium coronary artery
 Coronary computed tomography angiography
 Right coronary sinus
 Intramyocardial course

ABSTRACT

Single ostium coronary artery is a rare coronary artery anomaly. It is reported to occur in only 0.0448% of cases who underwent invasive coronary angiography. It can be associated with angina, arrhythmias, and possibly sudden death and is a clinically important entity to rule out in patients presenting with chest pain. We report the case of a 68-year old man who presented with worsening resting chest pain and underwent invasive coronary angiography and a single ostium coronary artery was identified. Subsequent coronary computed tomography (CT) angiography revealed it to be a unique variation of class R-III of Lipton classification of single ostium coronary artery. Lipton R-III single ostium coronary artery is rare and its incidence is reported to be 0.004% in patients who had invasive coronary angiography. In our case, anomalous left coronary circumflex artery was retroaortic course combined with intramyocardial course. It also divided into multiple obtuse marginal branches in the myocardium and never coursed along the anterior and lateral aspects of the arterioventricular groove. This variation has not been reported in the literature. Coronary CT angiography played an essential role to delineate this complex coronary anomaly.

<Learning objective: Single ostium coronary artery is a rare coronary artery anomaly. However, it is a clinically important entity to rule out in the evaluation of patients with chest pain. Invasive coronary angiography can identify this anomaly; however, coronary computed tomography angiography is recommended to fully characterize this condition as demonstrated in our case. Depending on the detailed anatomical information of the anomaly, the clinical management needs to be tailored for these cases.>

© 2015 Japanese College of Cardiology. Published by Elsevier Ltd. All rights reserved.

Introduction

The incidence of single ostium coronary artery (SOCA) is reported to be 0.0448% in patients who underwent invasive coronary angiography [1] and it may be a culprit for angina, arrhythmias, and possibly sudden death [1–3]. Coronary computed tomography angiography (CCTA) is advocated to characterize these anomalies in conjunction with invasive coronary angiography [3–5]. Among SOCAs, a pattern of R-III Lipton classification in which left anterior descending coronary artery (LAD) and left circumflex coronary artery (LCX) occur separately from single coronary artery arising from the right coronary sinus is considered to be very rare with known incidence of 0.004% among patients having invasive coronary angiography. Here, we report an

extremely rare case of SOCA of R-III Lipton classification which demonstrated unique course of anomalous LCX. CCTA played an essential role to delineate the complex coronary anatomy of this case and helped to guide the clinical management.

Case report

We report the case of a 68-year-old male who presented to the hospital with worsening resting chest pain and uncontrolled hypertension. His blood pressure was 180/110 mmHg and heart rate was 50 per minute when he presented to the emergency room. The patient was hospitalized and the electrocardiogram showed new deep T wave inversion in leads II, III, and aVF in the presence of left axis deviation and left ventricular hypertrophy by the voltage criteria on admission. The echocardiogram on admission showed normal left ventricular systolic function with mild left ventricular hypertrophy and pseudo normal pattern of left ventricular diastolic dysfunction. The troponin I peaked at 0.26 ng/ml during this admission. The patient underwent invasive coronary angiography. A

* Corresponding author at: Division of Cardiovascular Health and Disease, Department of Internal Medicine, University of Cincinnati, 231 Albert Sabin Way, ML 0542, Cincinnati, OH 45267, USA. Tel.: +1 513 558 4272; fax: +1 513 558 2884.
 E-mail address: shizukya@uc.edu (Y. Shizukuda).

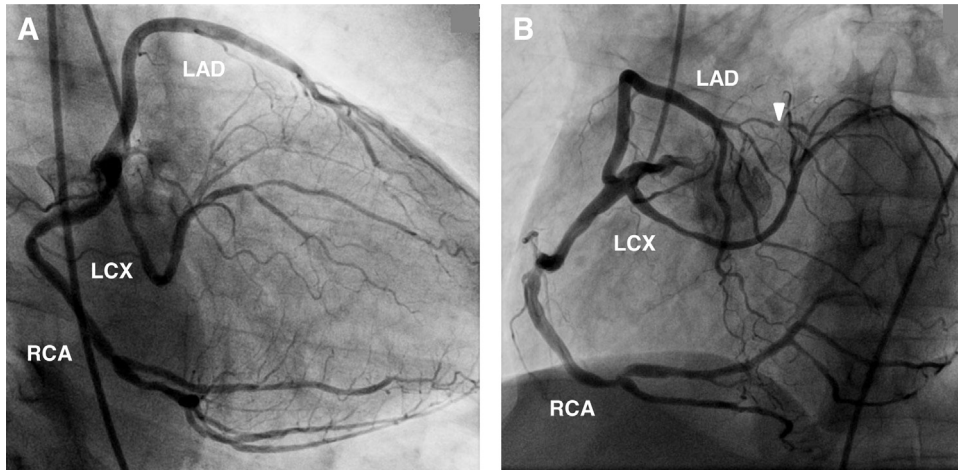


Fig. 1.

Right anterior oblique (panel A) and left anterior oblique (panel B) coronary angiography showing a single ostium coronary artery from the right sinus that shortly divides into 3 branches. Moderate coronary stenosis is noted at the proximal segment of circumflex coronary artery (LCX) and the mid segment of right coronary artery (RCA). Abnormal courses of anterior descending coronary artery (LAD) and LCX are also demonstrated. The white arrow head indicates a high-grade stenosis noted in the first diagonal branch.

SOCA originating from the right coronary sinus was diagnosed and the single coronary artery shortly divided into 3 branches (Fig. 1). Thus, SOCA of Lipton R-III was diagnosed. A high-grade stenosis was noted in the presumptive first diagonal branch (white arrow head in Fig. 1, panel B). The presumptive LCX showed a moderate-grade stenosis at its proximal segment. The presumptive first obtuse marginal branch showed moderate stenosis. The presumptive right coronary artery (RCA) showed a moderate-grade stenosis at its mid segment. Medical management was considered; however, a concern of additional coronary anomaly condition such as an interarterial course of anomalous coronary artery, CCTA was performed to further characterize this coronary anatomy.

Subsequent CCTA confirmed SOCA and revealed that the LAD coursed anterior to the pulmonary artery and LCX was retroaortic course with intramyocardial course at its mid to distal segments (Figs. 2 and 3). It also divided into multiple obtuse marginal branches inside the myocardium and never coursed along the anterior and lateral aspects of the arterioventricular groove (Fig. 3).

This course of anomalous LCX associated with SOCA has not been reported to our knowledge. Atherosclerosis plaques corresponding to invasive coronary angiography were also noted. During his hospital stay, additional anti-hypertensive medication (lisinopril 20 mg once a day) was added to control his blood pressure in addition to clonidine 0.3 mg three times a day which he was taking as an outpatient. Intravenous heparin was given for the first 48 h of admission. He was also placed on metoprolol 12.5 mg twice a day, aspirin 81 mg once a day, and simvastatin 20 mg once a day for angina. His chest pain did not recur and his troponin I was normalized on the third day of his hospitalization. Considering a lack of critical coronary artery stenosis except the first diagonal branch, the absence of high-risk course of anomalous coronary arteries, and the presence of uncontrolled hypertension, we speculated that the elevated troponin was likely due to a small area ischemia of the first diagonal branch territory which was exacerbated by increased oxygen demand associated with uncontrolled hypertension. Thus, we did not conduct coronary

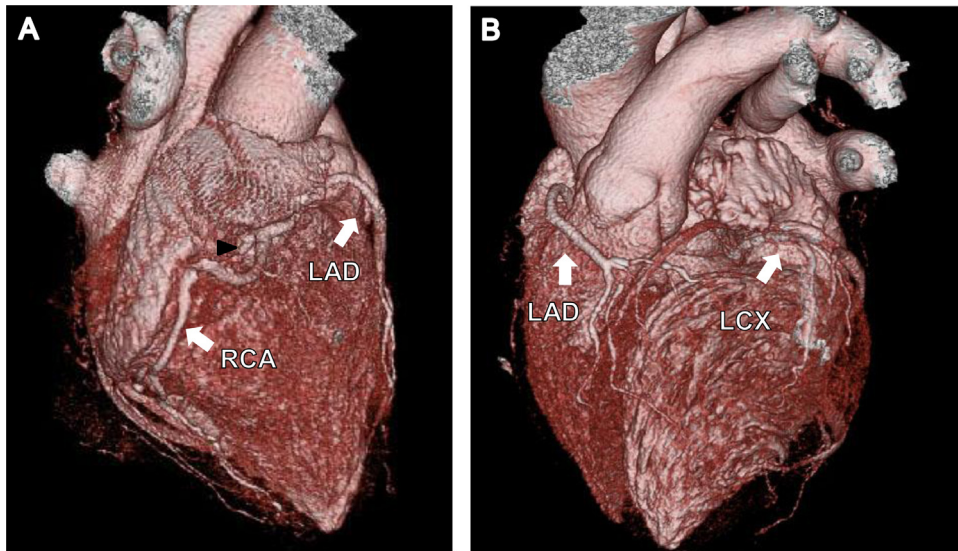


Fig. 2.

Volume rendering images of coronary computed tomography angiography are shown. In panel A, a single ostium coronary artery from the right coronary sinus is noted. The black arrow head indicates the anomalous left circumflex coronary artery (LCX). In panel B, anterior coursing of anomalous left anterior descending coronary artery (LAD) is shown. RCA, right coronary artery.

Download English Version:

<https://daneshyari.com/en/article/5984353>

Download Persian Version:

<https://daneshyari.com/article/5984353>

[Daneshyari.com](https://daneshyari.com)