Single coronary artery from right aortic sinus in a very elderly patient

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In the absence of other associated cardiac anomalies, single coronary artery (SCA) *per se* is a rare anomaly detected during coronary angiography or autopsy. Various types of SCA detected during coronary angiography have already been described. We herein report a type of SCA originating from the right sinus of Valsalva, with the right circumflex, left circumflex, and left anterior descending coronary arteries arising from the proximal part of the SCA in a 76-year-old female patient. She developed ventricular fibrillation during coronary angiography, which calls for caution while performing a coronary angiogram in such patients.

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Keywords: Coronary artery anomalies, Single coronary artery

Introduction

Various types of single coronary artery (SCA) have been detected during coronary angiography. We herein report a type of SCA originating from the right sinus of Valsalva, with the right circumflex, left circumflex (LCX), and left anterior descending (LAD) coronary arteries arising from the proximal trunk of the SCA in a 76-year-old female patient.

Case report

A 76-year-old hypertensive Arabian female patient presented with exertional angina Class II, which she had been experiencing for the past 6 months. Results of her cardiac examination, electrocardiogram, and echocardiogram were normal except for mild left ventricular hypertrophy. Her coronary angiogram revealed the absence of the left main coronary artery with no artery arising from the left sinus. Cannulation of the right coronary artery (RCA) using a JR4 (Cordis Corporation, Bridgewater, NJ, USA) 6-Fr catheter revealed an SCA originating from a single right coronary ostium situated in the right sinus of Valsalva (Figs. 1A and 1B). The SCA arising from the normal position of the ostium of the RCA continued as a large RCA in the right atrioventricular groove and gave rise to the posterior descending artery and a posterolateral branch at the crux (Fig. 1B). The LAD artery arose from the proximal trunk of the SCA as the first branch, and took a prepulmonic

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CASE REPORT

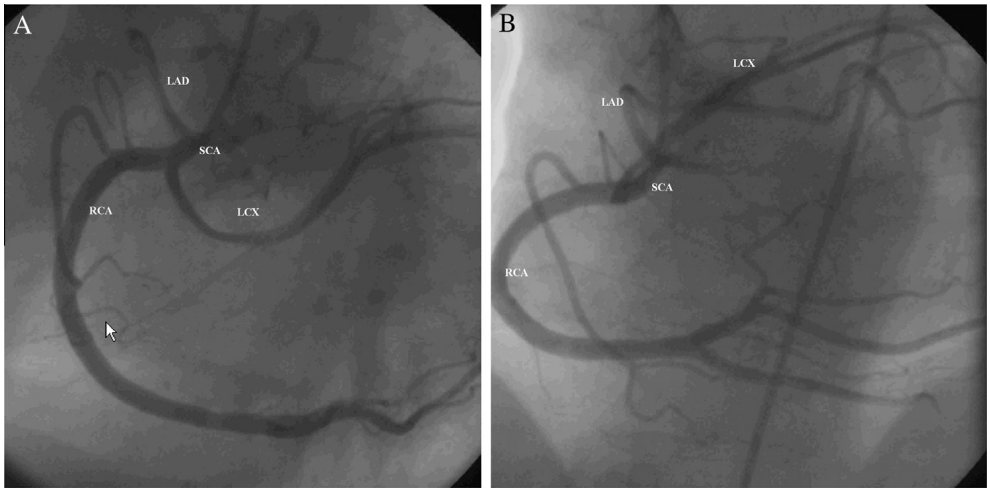

Figure 1. Coronary angiogram showing the single coronary artery (SCA) arising from the right sinus of Valsalva and giving rise to the left anterior descending (LAD) artery, the left circumflex (LCX) artery, and continuing as the right coronary artery (RCA) in a 76-year-old female patient (A). The LAD artery takes a prepulmonic course and the LCX artery takes a retroaortic course to reach their respective destination (B).

course (on the anterior side; Figs. 1A and 1B). The LCX artery arose as the second branch of the SCA and took a retroaortic course (Fig. 1A). There was no flow-limiting stenosis. During the last injection, the patient sustained ventricular fibrillation with loss of consciousness, which necessitated applying a 200-J direct current shock two times. The patient then had complete recovery. Computed tomography coronary angiogram confirmed the SCA arising out of the single ostium from the right sinus of Valsalva and then dividing into the RCA, the LAD artery, and the LCX artery (Figs. 2 and 3). There was no interarterial course of neither the SCA nor its branches. Because the course of the anomalous arteries was not malignant and the patient was a case of Class II angina, optimal antianginal treatment was recommended. At 4 years' follow-up she was doing well.

Discussion

Congenital coronary artery anomalies not associated with structural heart disease are seen in 1.3% of coronary angiography studies and their prevalence ranges from 0.21% to 5.79% [1,2]. Various types of congenital coronary artery

Figure 2. Volume-rendered three-dimensional coronary computed tomography angiogram showing (A) the single coronary artery (SCA) arising from the single ostium from the right sinus of Valsalva and then dividing into the right coronary artery (RCA), the left anterior descending (LAD) artery, and the left circumflex (LCX) artery. (B) The retroaortic course of the LCX artery close to the aorta and the anterior course of the LAD artery are seen clearly.

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