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Short communication

Single coronary artery accompanying myocardial bridging on LAD and retroaortic course of LCX☆,☆☆,☆☆☆,★,★★

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ABSTRACT

Introduction: Coronary artery anomalies are a group of highly variable disorders. Patients with multiple coronary anomalies are very uncommon. Clinical manifestations of coronary artery anomalies can vary from asymptomatic to sudden cardiac death.
Case presentation: A symptomatic 43-year-old female patient with single coronary artery, symptomatic myocardial bridging on left anterior descending artery and retroaortic course of left circumflex artery is presented.
Management and outcome: A reversible perfusion defect was detected only in the anterior wall of the left ventricle. After treatment with beta blocker therapy and lifestyle changes, the patient is asymptomatic at 3 months of follow up.
Discussion: In most cases, it is difficult to determine the coronary anomalies by catheter coronary angiography alone. Similar to our case, non invasive methods such as multislice computed tomography coronary angiography may be useful to evaluate the coronary anatomy and define the coronary artery anomalies.

Introduction

Coronary artery anomalies consist a rare group of congenital heart diseases whose presentations and pathophysiological mechanisms are highly variable.[1] Incidence of coronary artery anomalies is approximately 1% for patients that undergone cardiac catheterisation.[2] A combination of multiple anomalies is very uncommon. We described a 43-year-old female patient with three coronary artery anomalies that are single coronary artery (SCA), myocardial bridging (MB) on the left anterior descending artery (LAD) and retroaortic course of the left circumflex artery (LCX).

Case report

A 43-year-old female patient was applied to cardiology polyclinic due to typical anginal complaint with effort. Rest electrocardiography was normal. Echocardiography and the physical examination were unremarkable. The patient has no risk factors except smoking and hypertension. We decided to perform catheter coronary angiography because of the occurrence of chest pain at exercise stress test. In her angiogram, we found that the LAD, LCX and right coronary artery (RCA) arose from a single coronary artery which originates from the right sinus of valsalva (Fig. 1A). Also, the MB was seen on the proximal segment of the LAD. Then, multislice computed tomography (MSCT) coronary angiography was performed to evaluate the patient's coronary anotomy in detail. As a result of MSCT coronary angiography, we saw that there was no coronary artery ostium at the left sinus of valsalva and the whole coronary system arose from a single trunk that originated from the right sinus of valsalva. This short common trunk trifurcated to three main branches; RCA, LAD and LCX (Fig. 1B). The proximal segment of the LAD proceeds intramurally through the myocardium and causes to MB (Fig. 2). A reversible perfusion defect was detected at the anterior wall of the left ventricle at myocardial perfusion scintigraphy. The course of LCX is retroaortic between the aorta and left atrium, and then reaches to posterolateral wall

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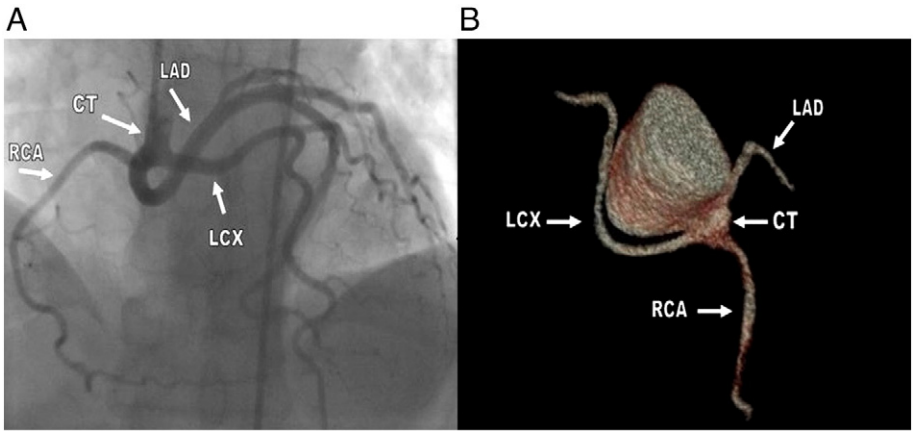

Fig. 1. A: Catheter coronary angiography image shows trifurcation of common trunk (CT: common trunk) B: 3D image of MSCT coronary angiography demonstrates trifurcation of common trunk (MSCT: Multislice computed tomography, CT: common trunk).

of the left ventricle (Fig. 3). The course of LAD was anterior to the pulmonary artery and there was no critical atherosclerotic stenosis in any coronary arteries.

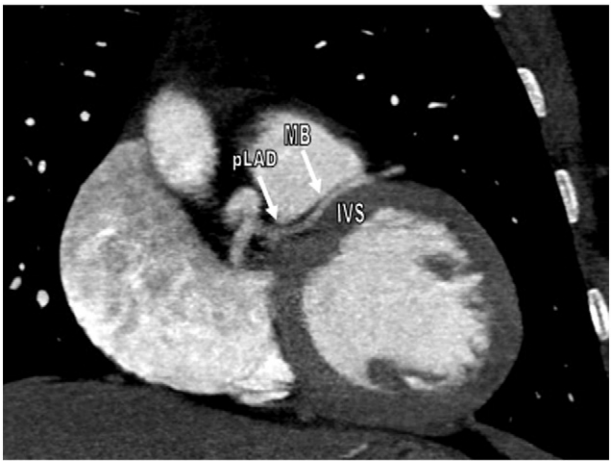

Fig. 2. Multiplanar image of MSCT coronary angiography shows myocardial bridging into the interventricular septum (MSCT: Multislice computed tomography, pLAD: proximal LAD, MB: myocardial bridging, IVS: interventricular septum).

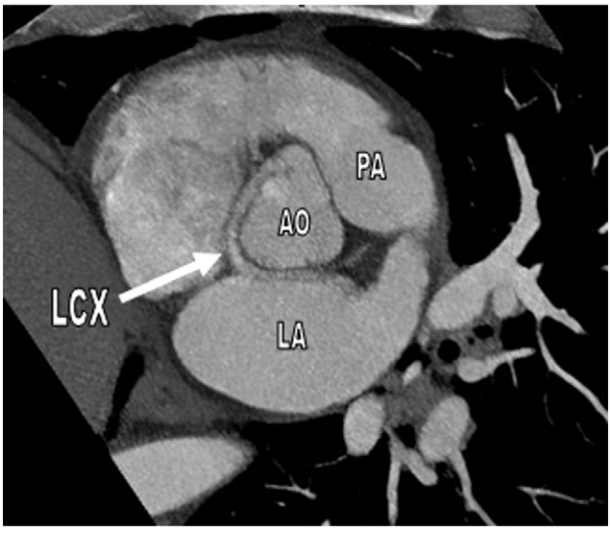

Fig. 3. Axial image of MSCT coronary angiography shows retroaortic course of LCX (MSCT: Multislice computed tomography).

Discussion

Coronary artery anomalies are frequently seen in combination with major congenital cardiac defects. The presence of multiple anomalies can be associated with potentially lethal conditions. SCA is an uncommon anomaly that only one coronary artery arises from the single coronary ostium and its clinical significance is unknown.[3] It's generally considered to be benign. However, some patients may have myocardial ischemia directly caused by the abnormal anatomy.[4] Right SCA is more uncommon.[5] In our case, SCA originates from the right sinus of valsalva. MB is a band of myocardium that lies on top of a coronary artery and it is characterized by systolic compression of this segment. MB is mostly localized on the LAD and it is clinically silent in most cases, but sometimes it can be associated with myocardial ischemia.[6,7] Both SCA and MB could be the cause of the patient's chest pain in our case. After performing myocardial perfusion scintigraphy, a reversible ischemic perfusion defect was detected only in the anterior wall of the left ventricle. We offered to the patient to avoid competitive sports and excessive exercise. These suggestions are combined with beta blocker treatment. When the drug dose is titrated to metoprolol 100 mg daily, the patient's chest pain was resolved. After three months of follow up, the patient is asymptomatic and no complication was observed. These findings also suggest that MB was the cause of chest pain for this patient. Both SCA and retroaortic course of the LCX may be only anatomic variations. Mostly, it is difficult to determine the coronary anomalies by catheter coronary angiography alone. MSCT coronary angiography is a non invasive, also a 3D imaging technique may be useful to evaluate the coronary anatomy and define the coronary artery anomalies.[8] We demonstrated an unusual case of a patient with coronary artery anomaly; single coronary artery, symptomatic myocardial bridging on the LAD and retroaortic course of the LCX was detected by catheter and a 64-multidetector MSCT coronary angiography.

Conflict of interest

Nothing to declare.

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