

Letter to the editor on article ``Anomalous origin of right coronary artery from left coronary sinus associated with aneurysm of aortic root``

Dear Editor,

We read with great interest the case report of Tuleutayev and co-authors (1) published in Heart, Vessels and Transplantation. In this case report, authors present a 61-year-old male patient admitted to the emergency department with chest pain. Multidetector computed tomography (MDCT) revealed aortic root aneurysm and right coronary artery (RCA) origin anomaly with related myocardial infarction. Images of a very good quality and satisfying information before and after surgical treatment were presented. However, in this case, no images or findings showing the pressure limiting the right coronary artery (RCA) blood flow were demonstrated.

Coronary artery anomalies are congenital pathologies with a low prevalence of 1-2% in the general population (2). Despite a low prevalence, coronary artery anomalies are the second most common cause of sudden cardiac death in young patients (3). Diagnosis of coronary artery anomalies has increased with the use of advanced MDCT technology (4).

Shriki et al. (5) classified the coronary artery anomalies as two major subgroups: hemodynamically significant and hemodynamically nonsignificant. As mentioned in this classification, the main factor determining the clinical importance of coronary artery anomalies is their hemodynamic significance. Coronary artery output anomalies are benign anomalies when they do not affect hemodynamics, and the

most common, occurrence of RCA from left coronary sinus is seen (5). However, anomalies of the course accompanied by the anomalies of the interarterial type anomalies are important hemodynamically significant pathologies (6). In cases of the pathological course of RCA between aorta and main pulmonary arteries with anomalous RCA originated from left coronary sinus, myocardial ischemia and associated chest pain may cause sudden cardiac death related to compression of the coronary artery (7).

As a result, we believe that the main factor that determines the clinical importance of the anomaly in coronary artery anomalies is their effect on hemodynamics, as we can see the findings of pressure in this case report (MIP, axial and 3D images).

We would like to share a rare imaging findings with aim to explain the importance of pressure findings. A 48-year-old woman with a family history of coronary artery disease, chest pain induced by exertion, and dyspnea presented to the cardiology clinic in October 2018. Echocardiography and electrocardiography were within normal limits. Laboratory examination did not show an increase in cardiac enzymes. The patient was consulted and ECG triggered MDCT angiography (Aquilion Premium 160 detector, Toshiba Medical Systems) was performed.

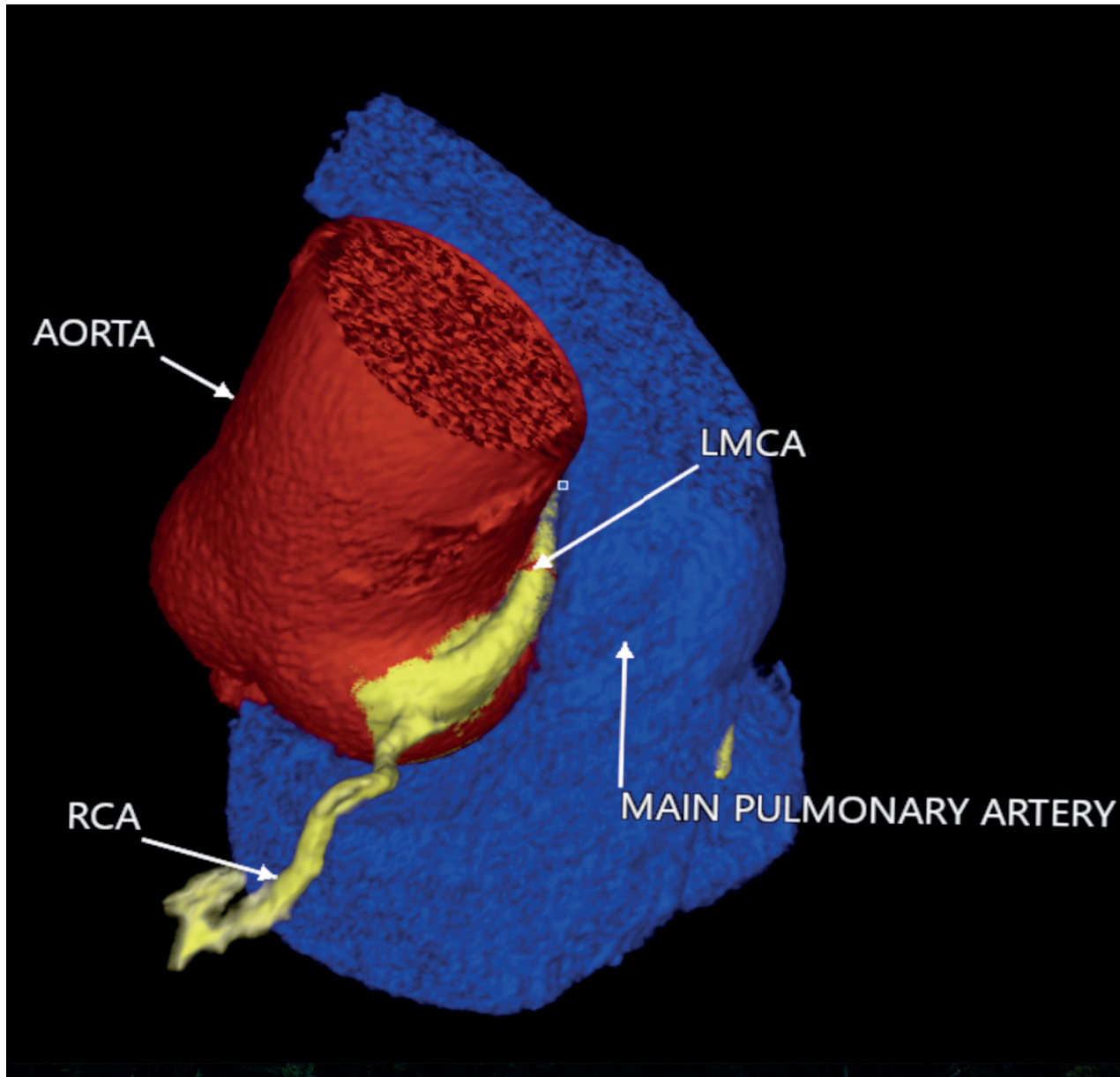


Figure 1. LMCA interarterial course between pulmonary artery trunk and aorta.

LMCA – left main coronary artery, RCA –right coronary artery

In the obtained images, RCA and left main coronary artery (LMCA) originated from the right sinus with two different ostiums. The LMCA had interarterial course between the aorta and the main pulmonary artery and returned to the anterior interventricular groove. LMCA was then divided into the left anterior coronary artery, circumflex coronary artery and ramus intermedius coronary artery branches. The RCA showed an ostium-like exit from the right sinus and then returned in the right atrioventricular groove. In the comparison of images taken during systole and diastole, there was a narrowing of the lumen calibrations during systole in the interarterial segment of the LMCA (Fig. 1)

Complaints of the patient were attributed to the LMCA's interarterial course and decreased lumen diameter during systole. The patient received treatment with beta-blocker because of the patient's refusal to accept surgical treatment. Also it was recommended to avoid heavy effort due to the risk of sudden cardiac death.

In this case, the effect of coronary artery anomaly on coronary hemodynamics was clearly demonstrated.

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