# Single coronary artery diagnosed by multidedector computed tomography

## *Çok kesitli bilgisayarlı tomografi ile tanı konulan tek koroner arter*

The coronary circulation originating from a single coronary ostium is a rare variation. These variations were classified according to the site of the origin and distribution patterns of the coronary arteries. We describe Type IIB 4 pattern in this case. The left main coronary artery (LMCA) arised from the proximal right coronary artery and coursed to the left side anterior to the right ventricle. It gave the left anterior descending artery (LAD) coursing to the interventricular groove and left circumflex artery (CxA) coursing to the left atrioventricular groove.

A 40-year-old male presented with atypical chest pain for six month. His physical examination, laboratory results, chest X-ray, and electrocardiogram were normal. A multidedector computed tomography coronary angiography (MDCT-CA) was performed to evaluate the coronary vessels. The MDCT-CA showed a single large coronary artery originating from right sinus of Valsalva (Fig. 1, Video 1. See corresponding video/images at www.anakarder.com) and the left main coronary artery arising from proximal right coronary artery. After traversing in front of the right ventricular outflow tract, LMCA gave the origin to the LAD and CxA.



**Figure 1. View of a single coronary artery originating from right coronary cusp in 3D- volume rendered by multidetector computed tomography image**



**Figure 2. Absence of vessels originating from left coronary cusp in volume rendered by multidetector computed tomography image**

There was no vessel originating from the left coronary cusp (Fig. 2). Stenosis was not observed in any part of the coronary tree. No further associated congenital heart anomaly was present.

The incidence of isolated single coronary artery in angiographic series is 0.024%. It has a little clinical significance, except for cases in which a coronary artery traverses between the aorta and the pulmonary artery. Identification of retropulmonary position of an arterial segment is important, since mechanical compression of such a vessel between the aorta and the pulmonary artery may be a potential cause of ischemia and sudden cardiac death. The anomaly of this case has no clinical significance of this kind.

Until now, the main diagnostic method for detection of coronary anomalies has been coronary angiography which has some limitations. It is an invasive procedure and only selectively visualizes one vessel tree at a time and cannot obtain information on the 3-dimensional (3D) course of the vessel. Novel advances on computed tomography technology offer a noninvasive and accurate diagnostic modality to visualize the origin and course of anomalous coronary arteries in a 3D fashion.

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# Coronary artery evaluation in Kawasaki disease by dual source multi-detector CT coronary angiography in children

## *Çocuk yaşta Kawasaki hastalarında "dual source" multi dedektör BT anjiyografi ile koroner arter değerlendirmesi*

Kawasaki disease is a childhood vasculitis of medium-sized vessels, affecting the coronary arteries in particular. Assessment of the degree of coronary stenosis and serial evaluation of coronary artery pathologies are essential for risk stratification and therapeutic management. Invasive coronary angiography is considered to be the gold standard technique. Multi-detector computed tomography coronary angiography (CTCA) is a noninvasive alternative imaging modality. It can also provide complementary morphologic data to echocardiography.

The CTCA is an approved noninvasive technique in the diagnosis of coronary pathologies. Dual source CTCA is a new generation device that can acquire diagnostic images in patients with high heart rates and/or arrhythmias without the use of beta blockers. This is advantageous for pediatric patients whose heart rates are generally higher than the average adult groups.

A 4-year old boy with 7 months' history of Kawasaki disease was admitted to the hospital for CTCA. In the previous echocardiographic examination 2 coronary aneurysms were detected in left main coronary artery (LMCA) and right coronary artery (RCA).

The CTCA was performed with a dual source (2x64 detector system) CT scanner during free breathing and injection of 40 mL of intravenous