

Altered course of non-affected left coronary artery as a reason for symptoms of coronary artery disease

Nietypowy przebieg niezmięnionej miażdżycowo lewej tętnicy wieńcowej jako przyczyna objawów dławicy piersiowej

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Anomalies of coronary arteries are rare (about 0.3–1.3% of patients undergoing a coronary angiography procedure), and left coronary artery (LCA) going from the right sinus of Valsalva (RSV) is described in 0.09–0.15% of cases. We present the case of a 61-year-old female who complained of typical angina symptoms for two years. A cardiac stress test was performed with positive result. The patient was admitted to hospital for coronary catheterisation. Electrocardiogram (ECG) revealed: sinus rhythm 66/min, with T-wave inversion in leads III and aVF and ST depression in leads V₄–V₆. Echocardiography showed: no segmental wall motion abnormalities and ejection fraction 65%. A coronary angiography was performed. Anomalous origin of LCA from the RSV was observed. Apart from that, the coronary arteries were not affected. Because coronary angiography reveals only two-dimensional views, coronary computed tomography angiography was performed to evaluate the detailed anatomy and course of the coronary arteries. A study was performed with ECG gating at 56–61 bpm using a retrospective acquisition technique. Anatomy and patency of coronary arteries was evaluated using dedicated coronary software. Coronary arteries and their branches were free of plaques, which might have caused significant stenoses and related symptoms. RSV was a source of short common trunk, which bifurcated into the right coronary artery (RCA) and LCA (Fig. 1). The RCA followed its typical anatomical course, and the LCA ran to the left, initially between the right ventricular outflow tract and ascending aorta, and subsequently within the basal anterior segment of the intraventricular septum (Fig. 2A, B). Intramuscular segment supplied the branch corresponding with the diagonal (D1) branch of left anterior descending artery (LAD) and a tiny branch that seemed to supply the intraventricular septum. Further segments of the LCA anatomically corresponding to the LAD ran in epicardial fat tissue giving an origin to the left circumflex artery and its obtuse marginal branches. The type of anomalous course of LCA described in our patient (inter-arterial) has the worst prognosis and is associated with sudden cardiac death (> 50%), especially connected with exercise. For that reason the case of our patient is also unusual. As a young woman she practiced athletics for several years. Her professional work was connected with great physical effort. And finally she gave birth to three children (forces of nature). None of these situations provoked any symptoms. At the time of writing, the state of the patient is stable, so she has been offered optimal medical treatment.

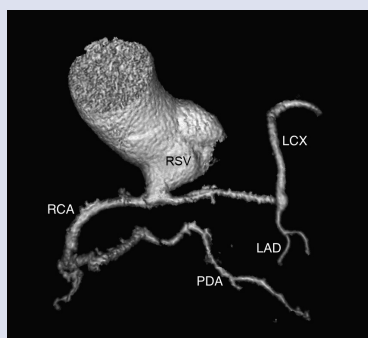


Figure 1. Volume rendering reconstruction left coronary artery and right coronary artery (RCA) originate from right sinus of Valsalva (RSV) with the short common trunk; LAD — left anterior descending artery; LCX — left circumflex artery; PDA — posterior descending artery

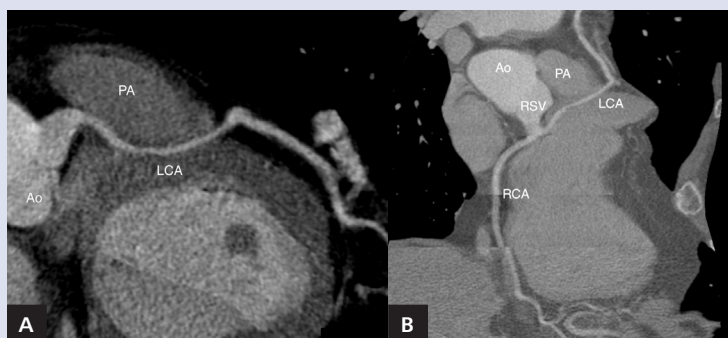


Figure 2. A. Curved multiplanar reconstructions. Proximal segment of left coronary artery (LCA)/left anterior descending artery running between aorta (Ao) and right ventricular outflow tract, partially in intraventricular septum; **B.** Curved multiplanar reconstructions. Patent, non-affected right coronary artery (RCA) and LCA originating from the right sinus of Valsalva (RSV) with short common trunk; PA — pulmonary artery

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