A 10-week-old boy was admitted with symptoms and signs of heart failure and suspicion of dilated cardiomyopathy. On electrocardiogram (ECG), myocardial ischemia was present: ST-T elevation in leads II, III, aVF, V3 through V6 (arrows in FIGURE 1A and 1B); deep Q waves in leads I, II, V6; and abnormal positive T wave in leads V1 through V4. Echocardiography revealed left ventricular (LV) enlargement, decreased LV ejection fraction (10%–16%) and mitral valve regurgitation. The left coronary artery (LCA) origin was not visible and retrograde flow was recorded in the pulmonary artery (PA). Pathological flow in coronary collaterals was visualized in the interventricular septum.

The modality chosen for cardiac imaging including coronary arteries depends on the age of the patient and local capabilities. Echocardiography remains the first-line modality in pediatric cardiac imaging with growing evidence in anatomical and functional cardiac assessment. The diagnosis of anomalous left coronary artery from the pulmonary artery can be made by echocardiography alone, but in the majority of centers, objective invasive angiography or computed tomography (CT) angiography would be required.

Our patient underwent volumetric, 320-row CT (Aquilion One; Canon Medical Systems) with prospective, end-systolic ECG-gating, without sedation and while free-breathing after the administration of 10 ml of iso-osmolal, iodine contrast medium with flow rate of 1.5 ml/s through 22G intravenous catheter inserted in the lower extremity vein. His weight was 5.3 kg and heart rate was 150 bpm. Radiofrequency dose index, DLP (dose-length product), calculated for a body phantom was 22.8 mGy × cm. The right coronary artery (RCA) arose typically from the right sinus of the aorta (FIGURE 1C), while the LCA from the medial wall of the PA (FIGURE 1D). Retrograde flow from the LCA to the PA was observed (red arrows in FIGURE 1D) through arterial ring of Vieussens, collateral pathway between prominent branches of the conal artery and proximal branches of the left anterior descending artery (arrows in FIGURE 1C, 15, and 19).

Patient underwent successful reimplantation of the LCA. During 1-year follow-up, he remains stable on medications, normalization of LV parameters was seen 4 months after surgery.

Infant type of the anomalous left coronary artery from the pulmonary artery is a well known pediatric cardiac emergency and requires prompt diagnosis and treatment. Recent years have brought the possibility of a routine use of advanced CT technology also in pediatric patients with faster heart rate who are free-breathing and nonsedated with acceptable radiation doses. Computed tomography allows for precise preoperative evaluation of not only the ostia but also distal coronary branches and its relations even in severely ill infants. In our patient, it was possible to clearly identify collateral vessels of millimeter diameters, supplying...
the LCA from the RCA. They form arterial circle of Vieussens, a peritruncal embryologic remnant that becomes clinically significant also in adult patients with severe LCA stenosis.4

ARTICLE INFORMATION

CONFLICT OF INTEREST None declared.

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