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Right or left? The choices of a single coronary artery

Direita ou esquerda? As escolhas da artéria coronária única

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LM: left main coronary artery; LCX: left circumflex artery; LAD: left anterior descending artery; RCA: right coronary artery.

Figure 1. Coronary angiography and cardiac computer tomography images from two patients with single coronary artery, arising from the right (1A, 1B and 1C) and left (1D, 1E and 1F) sinus of Valsalva.

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We present two cases of single coronary artery (SCA), an extremely rare congenital anomaly, in which only one artery arises from the aortic arch by a single coronary ostium, supplying the entire heart. This condition occurs only in 0.024% to 0.044% of population, and most cases are associated with other congenital anomalies, such as persistent ductus arteriosus, tetralogy of Fallot and pulmonary atresia.¹ In a 2-week period, the two patients presented at the emergency department with non-ST segment elevation acute coronary syndrome.

The first patient was a 52-year-old female, with history of hypertension, diabetes, and idiopathic dilated cardiomyopathy evolving with heart failure and reduced ejection fraction, treated with both drug therapy and cardiac resynchronization. Coronary angiography showed a SCA originating from the right sinus of Valsalva, and no coronary stenosis (Figure 1A). Cardiac computed tomography (CCT) showed left main coronary artery with pre-pulmonary course and normal right coronary course (Figures 1B and 1C), and the myocardial scintigraphy was normal.

The second patient was a 67-year-old male, with coronary artery disease and previous revascularization of the left anterior descending (LAD) artery by percutaneous coronary interventions (PCI). Coronary angiography showed SCA originating from the left sinus of Valsalva, in-stent restenosis (ISR) of LAD, and diffuse atherosclerosis in the distal segment of the right coronary artery (Figure 1D). The right coronary artery courses posteriorly around the aorta, with no evidence of compression on the CCT (Figures 1E and 1F). The patient was submitted to PCI with stenting of LAD ISR.

The angiographical classification of SCA takes into account the origin of the ostium, from the left or right sinus of Valsalva, anatomical course of the vessel, and the course of the transverse trunk.² Coronary angiography, CCT, and cardiac magnetic resonance imaging are class-I tests, indicated for assessment of anomalous coronary arteries. Anatomical and physiological evaluations should be performed in patients with anomalous aortic origin of coronary arteries (AAOCA), to assess the risk of sudden cardiac death and assist on clinical decisions.^{3,4} Coronary revascularization is recommended for AAOCA from the left or right sinus, if symptoms or diagnostic evidence are consistent with ischemia attributable to the anomalous coronary artery.³

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CONFLICTS OF INTEREST

The authors declare there are no conflicts of interest.

CONTRIBUTION OF AUTHORS

Conception and design of the study: DP and PC; data collection: GLA and DP; data interpretation: GLA, DP and PC; text writing: GLA, DP and PC; approval of the final version to be published: PC.

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