

## CLINICAL VIGNETTE

# Crossing of coronary arteries

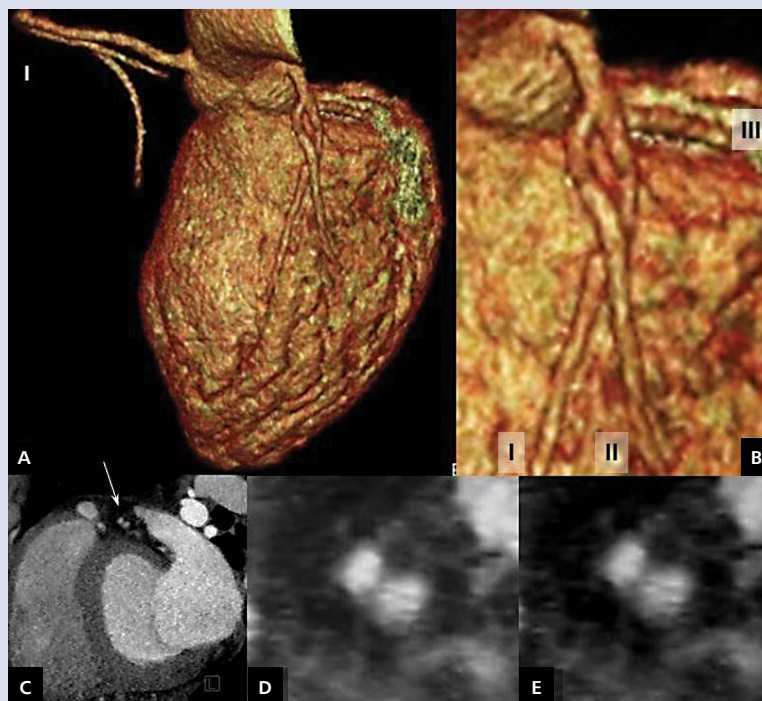
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Crossing of coronary arteries (COCA) is a casuistic anatomical finding in coronary computed tomography angiography (CCTA) or in conventional angiography. To the best of our knowledge only a few of such descriptions have been reported so far. Although COCA seems to be a benign anatomical finding, its clinical consequences remain unknown. We present a patient with COCA visualised by CCTA. A 35-year-old man with New York Heart Association class III heart failure due to dilated cardiomyopathy (DCM), significant mitral regurgitation, occlusion of the left internal carotid artery, and history of ischaemic stroke was admitted to exclude coronary artery disease or anomaly as an aetiology of DCM. CCTA revealed trifurcation of the left main coronary artery and the presence of COCA: crossing of the left anterior descending artery (LAD) with the ramus intermedius in the proximal segments of the arteries, without compression (Fig. 1A–E). Previous reports described crossing of LAD with the left circumflex artery (Continentino MA, et al. *Arq Bras Cardiol.* 2011; Pursnani A, et al. *J Cardiovasc Comput Tomogr.* 2012; Czekańska-Chehab E, et al. *Folia Morphol.* 2005) or crossing of the marginal arteries (Zegers ES, et al. *Neth Heart J.* 2007). Our illustration adds to the very modest literature on COCA, presenting its other variant: crossing of LAD with the ramus intermedius. It is uncertain whether COCA should be perceived as a normal variation or anomaly of the coronary artery, and what its clinical consequences are. The possible impact of COCA may depend on the size of crossing arteries, location of the crossing (proximal vs. mid) and coexisting coronary disease. One may speculate that COCA can lead to a compression of one of the crossing arteries during systole. What is more, it is unclear if COCA should be considered as a risk factor during coronary angioplasty (like a myocardial bridge), especially when pre-dilatation and/or stenting in the area of COCA is needed.



**Figure 1.** A. Computed tomography angiography (CTA) with volume-rendered reconstruction; I — right coronary artery; B. Magnification of panel A with focus on the crossing of the left anterior descending coronary artery (LAD) with ramus intermedius (RI). I — RI; II — LAD; III — left circumflex coronary artery; C. CTA with multiplanar reconstruction showing LAD/RI cross-section (arrow); D, E. Magnification of panel C with focus on cross-section of LAD and RI at the level of their crossing during diastole and systole, respectively. No systolic compression

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**Conflict of interest:** none declared

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