R-IIIC type: non-simple single coronary artery

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We read with great interest a report by Gallo et al. [1] on a very rare coronary artery anatomy. In a classification of single coronary artery (SCA) by Lipton et al. [2] with modifications by Yamanaka and Hobbs [3], this case refers to the R-IIIC type of SCA. Indeed, there is little discrepancy between terminology and anatomy in this type of SCA, which is very apparent in the present case. According to the foregoing classification, the R-IIIC type of SCA is an anomaly where the left anterior descending artery (LAD) and left circumflex artery (LCx) arise separately from the proximal part of the normal right coronary artery (RCA). Then, LCx passes the great vessels posteriorly and LAD crosses anteriorly the infundibulum of the right ventricle to reach their usual locations [2, 3]. This LAD supplies only the middle and distal portions of the anterior interventricular sulcus (AIVS), and the proximal portion of the AIVS receives blood from the ‘LCx’ (it is clearly seen in Fig. 2A from [1]). Thus, AIVS has two sources of blood supply and this anatomy refers to Type IV dual LAD [4]. In more detail, we have discussed this anatomy in a recent similar case by Saxena et al. [5, 6]. Hence, the R-IIIC type of SCA is a combination of two anomalies: Type IV dual LAD and left main stem (LM) originating from the RCA, and the correct description of coronary arteries in this type should apply the terms long LAD, short LAD and LM. Correct diagnosis of dual LAD in SCA may be important in planning the strategy of revascularization in the case of atherosclerotic lesions in the LM or short LAD.

REFERENCES

We thank V.I. Kaleda for his commentary [1] on our recent publication [2]. We appreciate his valid observation that mixed two different classifications: one related to single coronary artery [3] and the other related to dual left anterior descending coronary [4].

Angelini et al. [5] suggested a new classification that instead of alphabetical-numerical listings (as R-IIIC type, Type IV dual LAD), preferred to be more descriptive, using clear terminology that identifies each anomaly. Moreover, Angelini preferred to combine the traditional headings ‘anomalies of origin’ and ‘anomalies of course’ in one classification group, because the proximal course of a coronary artery can only be abnormal if the origin of the artery is abnormal (except in the case of intramural or subendocardial coronary arteries) [4]. Recently, Sithamparanathan et al. [6] suggested that previous classifications [3, 4] are limited to invasive angiography and not transferable for use with other imaging modalities. Additionally, they are not applicable to patients with congenital heart disease. For all these reasons, Sithamparanathan et al. have proposed a new descriptive and alphanumeric classification for the complete delineation of coronary anatomy and great vessels. However, this new classification needs to be clinically validated in the near future [6].

In our recent publication [2], the coronary anomaly was correlated with a single coronary ostium and the left circumflex artery presented a retroaortic path and partly supplied the proximal portion of the anterior interventricular sulcus. This anatomical pattern did not contraindicate a conventional surgical approach to the aortic valve.

It is important to recognize preoperatively coronary anomalies in order to understand the pathophysiological mechanisms that could be potentially lethal during cardiac surgery. For this reason, we consider that any classification should be clinically oriented [5].

Conflict of interest: none declared.

REFERENCES