Pentafurcation of left main coronary artery: a rare variant

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DESCRIPTION

A man in his 40s with atypical chest pain was referred for a coronary CT angiography to rule out coronary artery disease. Retrospectively ECG-gated scanning was done using a Somatom Force dual-source CT scanner (Siemens Healthineers, Forchheim, Germany) after intravenous administration of non-ionic iodinated contrast (1 mL/kg body weight at a flow rate of 5 mL/s). CT angiography incidentally revealed a rare variant branching pattern of the left main coronary artery (LMCA) where it was seen dividing into five branches, namely the left anterior descending (LAD) artery, left circumflex (LCx) artery, a good-sized intermediate branch and two small-sized intermediate branches (figure 1). No obstructive coronary artery disease was noted. While the LMCA commonly bifurcates into LAD and LCx arteries, higher order branching patterns including quadrifurcation and pentafurcation have been reported. Although the supernumerary intermediate branches in the present case are small in calibre, these variant LMCA branching patterns in the presence of good-sized supernumerary branches assume importance in the setting of an acute coronary syndrome.

First, management of a culprit lesion at LMCA multifurcation would understandably be technically challenging.1 Second, in the setting of higher order branching, ostial occlusion of one of the ‘supernumerary’ intermediate branches may easily be overlooked on catheter angiography. One must therefore exercise caution and look for ‘bare areas’ in the angiogram even on visualisation of ‘apparently normal’ branches of LMCA.

Learning points

- Higher order branching patterns of left main coronary artery including quadrifurcation and pentafurcation are rare anatomical variations.
- In the setting of higher order branching, ostial occlusion of one of the ‘supernumerary’ intermediate branches may easily be overlooked on catheter angiography.

Figure 1 Volume rendered images (A,B) depict the left main coronary artery (LMCA) dividing into five branches, namely left anterior descending artery (LAD), a small intermediate branch (1), a good-sized intermediate branch (2), another small intermediate branch (3) and left circumflex artery (LCx). LA, left atrium; LV, left ventricle; RA, right atrium; RCA, right coronary artery; RV, right ventricle.

REFERENCE
