Intervention of a Large Diagonal Branch for Acute Myocardial Infarction in a Patient with a New Variant of the Dual Left Anterior Descending Artery

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A 55-year-old man presented to our hospital with substernal chest tightness. The 12-lead electrocardiography showed unremarkable findings, but an elevated troponin I level of 0.198 ng/mL was observed (<0.05 ng/mL), suggesting non-ST elevation myocardial infarction. Transthoracic echocardiography showed a normal left ventricular ejection fraction with hypokinesia of the basal anterior septal wall. Left coronary angiography showed a short left anterior descending artery (LAD) arising from the left main coronary artery and a large diagonal branch without a visible distal LAD (Fig. 1A, B). Severe stenosis was observed in the large diagonal branch of the short LAD with unfavorable angulation, prompting the conclusion of total occlusion of the distal vessel. Contrast injection into the right coronary artery (RCA) revealed another suspicious LAD originating from the right coronary sinus separately from the RCA and continuing as the mid LAD (Fig. 1C, D). Percutaneous coronary intervention was performed with a sheathless power back-up (SPB) 3.0 guiding catheter (ASAHI Intecc, Nagoya, Japan). A 2.5×29 mm Firehawk sirolimus target eluting coronary stent (Shanghai MicroPort Medical Group, Shanghai, China) was implanted in the short LAD (Fig. 1E, F). After percutaneous coronary intervention with drug-eluting stent implantation, coronary computed tomography angiography confirmed the dual LAD with a long LAD originating from the right coronary sinus, different from the RCA, and coursing between the right ventricular outflow tract and the aortic root, and continuing as mid-to-distal LAD (Fig. 2).

A dual LAD is a rare coronary anomaly defined as the

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Article History:
Received January 6, 2021
Revised January 22, 2021
Accepted January 23, 2021

https://doi.org/10.4068/cmj.2022.58.1.61
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Chonnam Med J 2022;58:61-62
FIG. 2. Three-dimensional coronary computed tomography angiography image demonstrates anomalous dual left anterior descending artery (LAD) with a long LAD originating from the right coronary sinus independently from the right coronary artery, coursing between the right ventricular outflow tract and the aortic route, and continuing as mid- to distal LAD (arrow) and the stented big diagonal branch of the short LAD (arrowhead).

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ACKNOWLEDGEMENTS

This study was supported by the Bio and Medical Technology Development Program of the National Research Foundation (NRF) and funded by the Korean government (MSIT) (2020R111A3074806).

CONFLICT OF INTEREST STATEMENT

None declared.

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