

Three coronary arteries arising from one coronary cusp

Jamie S. Ho¹, Ching-Hui Sia^{2,3}, Mayank Dalakoti²,
William K. Kong^{2,3}, Lynette L. Teo^{3,4}, Koo-Hui Chan^{2,3}

¹School of Clinical Medicine, University of Cambridge, United Kingdom

²Department of Cardiology, National University Heart Center, Singapore

³Yong Loo Lin School of Medicine, National University of Singapore, Singapore

⁴Department of Diagnostic Imaging, National University Hospital, Singapore

A 53-year-old man with a history of hypertension and hyperlipidemia presented to the emergency department with central chest pain. An electrocardiogram showed ST-segment elevations in the inferior leads and ST-segment depressions in leads V1–V3 consistent with an infero-posterior ST-segment elevation myocardial infarction. Emergency coronary angiography was performed. There was difficulty cannulating the left main artery in the left aortic sinus with JL4 and JL3.5 catheters. The right coronary ostium was engaged with a JR4 catheter. This demonstrated a superdominant right coronary artery (RCA, ®) with a thrombotic occlusion in the mid-vessel and both the left anterior descending (LAD, @) and left circumflex (LCx, ©) arteries arising from the right coronary ostium (Fig. 1A, **Suppl. Video 1**, right anterior oblique projection). Primary percuta-

neous coronary intervention to the mid-RCA was performed with excellent results (Fig. 1B). The LAD and LCx arteries had minor irregularities. A computed tomographic coronary angiogram subsequently demonstrated RCA, LAD and LCx originating from the right coronary cusp with side-by-side origins. The RCA was the first branch from the right lateral aspect, followed by the LAD and the LCx left laterally (Fig. 1C1, C2 and C3; three-dimensional reconstruction, white arrow indicates stented segment; Fig. 1D; multiplanar reformation). The patient's medical therapy was optimized and he was discharged uneventfully. Anomalous coronary artery from the opposite sinus is a rare finding, especially when relating to left coronary arteries. It has been associated with early atherosclerosis, myocardial ischemia and sudden cardiac death.

Conflict of interest: None declared

Address for correspondence: Dr. Ching-Hui Sia, MBBS, MRCP, Department of Cardiology, National University Heart Centre, Singapore, 1E Kent Ridge Road, NUHS Tower Block Level 9, Singapore 119228, tel: +65 6779 5555, fax: +65 6779 5678, e-mail: ching_hui_sia@nuhs.edu.sg

Received: 27.03.2020

Accepted: 22.04.2020

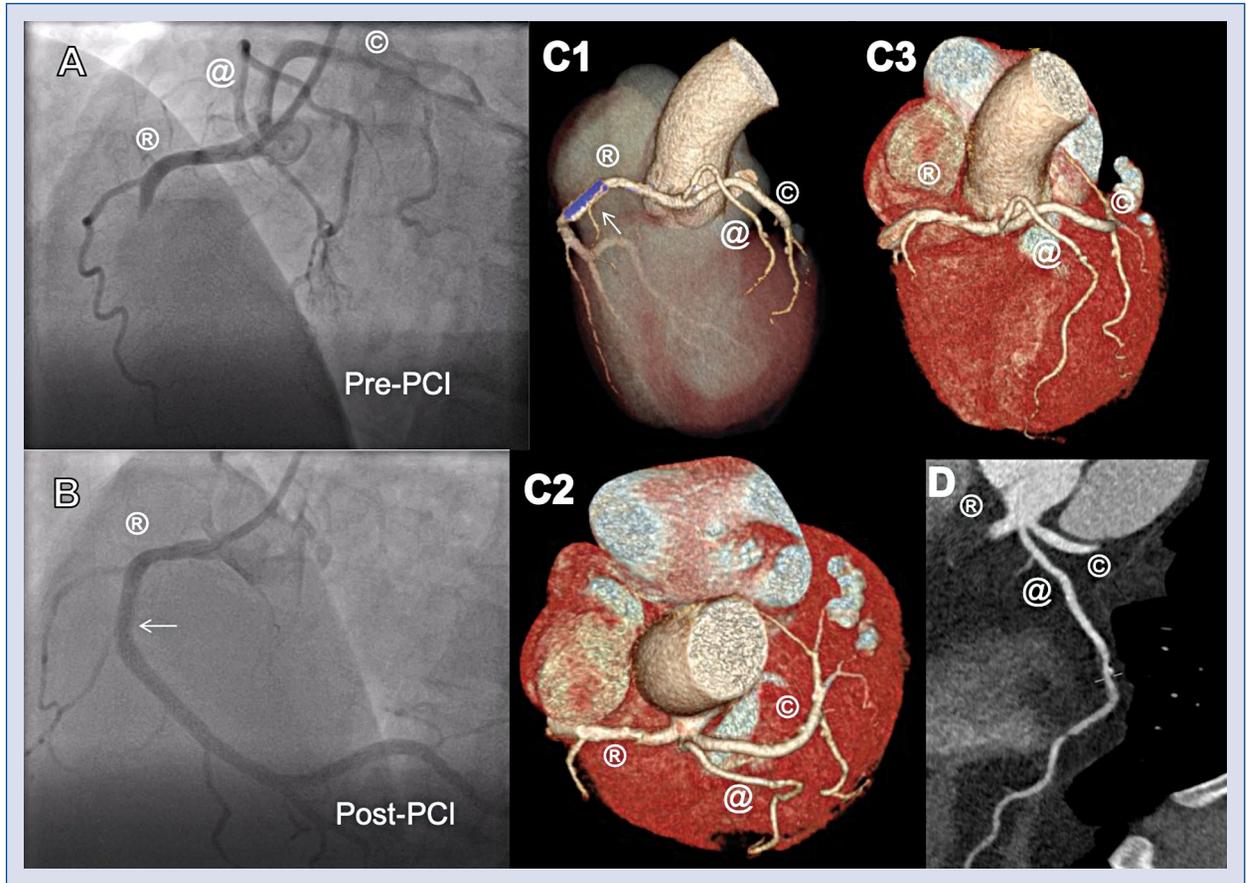


Figure 1. Coronary angiography pre-percutaneous coronary intervention (A) and post-percutaneous coronary intervention (B). Computed tomography coronary angiography showing right coronary artery, left anterior descending artery and left circumflex artery arising from the right coronary cusp on three-dimensional reconstruction (C1, C2, C3; white arrow indicates stented segment) and multiplanar reformation (D).