

CARDIOVASCULAR FLASHLIGHT

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Online publish-ahead-of-print 21 August 2013**Acute coronary syndrome unmasking a puzzling coronary anatomy: role of multimodality anatomic and functional imaging**Sachin S. Saboo^{1*}, Yiannis S. Chatzizisis^{1,2}, Ashish Khandelwal¹, and Ron Blankstein^{1,2}¹Non-invasive Cardiovascular Imaging Program, Department of Radiology, Harvard Medical School, Brigham and Women's Hospital, 75 Francis Street, Boston, MA 02115, USA and ²Cardiology Division, Harvard Medical School, Brigham and Women's Hospital, Boston, MA, USA

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A 57-year-old hypertensive female with lateral wall STEMI and cardiac arrest underwent cardiac catheterization which revealed a single right coronary ostium giving rise to the right coronary artery (RCA) and the left main (LM) coronary artery. The LM and left anterior descending (LAD) had moderate stenosis (50–70%), whereas the left circumflex (LCX) was totally occluded (Panel A). A percutaneous coronary intervention of the culprit LCX lesion was successfully performed (Panel B).

Coronary computed tomography angiography (CTA) performed to clearly delineate the anatomy confirmed a single coronary ostium originating from the right cusp giving rise to the dominant RCA, the LM, and accessory LAD (Panels C and F). The LM was retroaortic between the left ventricular outflow tract and the left atrium before bifurcating into the main LAD and LCX (Panels D and G), while the accessory LAD followed a pre-pulmonic course to reach the anterior interventricular groove (Panel E). Multiple plaques in the LM, proximal main LAD, and first obtuse marginal branch resulted in moderate stenosis (50–70%) (Panels C–E).

Positron emission tomography (PET) myocardial perfusion revealed a large scar with mild peri-infarct ischaemia in the distribution of LCX (Panel H) and mild ischaemia in the distribution of the LAD. The patient was discharged home stable with medical management.

In this case, despite the extensive coronary artery disease with multiple luminal stenosis, only the culprit vessel required treatment, while further disease was managed with aggressive medical treatment. Thus, the better delineation of unusual coronary anatomy by coronary CTA and the assessment of the myocardial ischaemia burden by PET helped for appropriate management of such a complex case of coronary artery disease.

