All four coronary arteries arising separately from the right aortic sinus of Valsalva: rare anomaly

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DESCRIPTION
A 60-year-old man presented with a history of new-onset retrosternal chest pain radiating to both arms for the past 2 days. The resting ECG revealed ST coving with T inversion in the inferior leads. Cardiac enzymes were also elevated. Echocardiography showed near normal biventricular function; however, minimal hypokinesia of the inferior wall was noted. Diagnosis of non-ST elevation myocardial infarction was made, and the patient was subjected to coronary angiography. The right radial route was selected for coronary angiography. We first cannulated the right coronary artery (RCA), which revealed plaques but no significant obstructive lesion (figure 1). After that, we tried to cannulate the ostium of left coronary artery in the left aortic sinus but failed despite multiple attempts. Then, we performed a non-selective aortic root angiogram, which faintly visualised the origin of a few other vessels near the ostium of RCA. We then kept the Judkin Right diagnostic catheter near the ostium of RCA and injected contrast which revealed anomalously arising left anterior descending (LAD), left circumflex (LCX) and ramus intermedius (RI) coronary arteries, all arising through separate...
None of these arteries revealed any significant obstructive lesions. No coronary intervention was needed. The patient was managed conservatively with high-dose statins, antiplatelet drugs and other recommended therapy. CT coronary angiography was done which confirmed the separate anomalous origin of four coronaries from right sinus and delineated their courses (figures 3-5). LAD and RI followed an anterior course, while LCX was retroaortic in its course. None of the vessels passed between the aorta and the pulmonary artery.

The independent origin of all four coronary arteries (RCA, LAD, LCX and RI) from four separate ostia in the right aortic sinus of Valsalva is an exceptionally rare anomaly.1 The course of LAD anterior to the right ventricle or behind the aorta has not been found to be associated with any adverse events.1 On the contrary, the course of LAD passing between aorta and pulmonary artery has been associated with an increased risk of ischaemic events and sudden cardiac death.1 2 Recognition of such variations in coronary anatomy is essential since failure to angiographically identify the origin and course of the anomalous coronary arteries can result in inappropriate clinical decisions and complications during coronary angioplasty or cardiac surgery.

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