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A very rare coronary anomaly

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Topic(s):
Coronary CT Angiography

Citation:
A 44-year-old lady presenting with new-onset type 2 diabetes and exertional chest pain. She underwent diagnostic coronary angiography which revealed a single coronary artery arising from the left cusp taking the course of a Ramus Intermedius (RI) branch. The Left Circumflex (LCx) arises from the right cusp with a separate ostium. The Right Coronary Artery (RCA) arises from the right cusp gives both the Posterior Descending artery (PDA) and the Posterior Left Ventricular (PLV) artery. The Left Anterior Descending (LAD) arises from the proximal RCA and gives a Sino-Atrial Node (SAN) branch. All her coronary arteries showed no significant lesions and no signs of atherosclerosis.

The patient was referred for multi-slice computed tomography coronary angiography (MSCTCA) for further assessment of the anomalous origin of the coronary arteries. Her coronary artery calcium (CAC) score was zero. The MSCTCA confirmed the diagnostic coronary angiography findings and showed that the LAD is taking a malignant inter-arterial course. Echocardiography and MSCT showed a preserved left ventricular function and the absence of resting regional wall motion abnormalities. The patient was referred for cardiac surgery consultation for the assessment of her surgical options.

Anomalies of the origin of coronary arteries are rare coronary congenital anomalies. They are a cause of sudden cardiac death especially in young adults. To our knowledge, this is only the second reported case of a RI branch arising from the left cusp. A malignant inter-arterial course of the Left Main Coronary Artery (LMCA) or LAD is best dealt with surgically with either re-implantation or bypass if symptomatic. RCA inter-arterial course should also be dealt with surgically if it causes significant ventricular arrhythmias or causing a significant perfusion defect on myocardial perfusion imaging.
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