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IMAGE FOCUS

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A very complex congenital heart anomaly: diagnosis through cardiac CT

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A 30-year-old male patient was referred to our institute by a private cardiologist for cardiac computed tomography (CT) due to atypical chest pain and wall motion abnormality on echocardiography. He had a history of hypercholesterolaemia and smoking, whereas his family history was unremarkable. Rest ECG was entirely normal. Multislice cardiac CT was performed using a 64-slice scanner. This illustrated the presence of a complex congenital anomaly of the coronary arteries consisting of: (i) Abnormal origin of the circumflex artery from the right aortic sinus (thin arrow in panels A and B). This vessel was directed anteriorly to follow an inter-arterial course between the aorta (AO) and the pulmonary artery (PA) trunk (panel B). (ii) Duplicated LAD, with a larger 'short' LAD originating from the left aortic sinus and a second thinner 'long' LAD originating from the right aortic sinus and coursing in parallel to the 'short' LAD supplying the anterior wall and apex (thick arrow in panels A and C). Moreover, intense trabeculations at the left ventricular apex were revealed, strongly suggesting the presence of non-compacted myocardium (arrows in panel D). Dedicated echocardiographic study confirmed that criteria for non-compaction cardiomyopathy were fulfilled. The patient underwent stress test that was negative for ischaemia and received conservative treatment. At the 2-year follow-up, he remains free of adverse cardiovascular events. This is a unique case of a very complex congenital heart anomaly not described before, with a cluster of abnormalities diagnosed in combination through multislice cardiovascular CT imaging.

