Left main coronary artery diverticulae: a rare case

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DESCRIPTION

A 64-year-old man, smoker, with history of diabetes, hypertension and dyslipidaemia presented with exertional angina for the past 6 months.

Figure 1 Left coronary artery injection, antero-posterior caudal view, showing left main coronary artery diverticulae with significant disease of left anterior descending and left circumflex coronary arteries.

Figure 2 Left coronary artery injection, antero-posterior cranial view, showing left main coronary artery diverticulae and diffuse disease of left anterior descending and left circumflex coronary arteries.

Video 1 Angiogram, caudal view, showing left main coronary artery diverticulae and the diffusely diseased left coronary artery.

General physical and cardiovascular examination were unremarkable. Resting ECG and echocardiogram were normal. Exercise testing was strongly positive for inducible ischaemia at low threshold. The patient underwent coronary angiography which showed severe and diffuse triple vessel disease (figures 1 and 2 and videos 1-3). Interestingly, two non-aneurysmal outpouchings arising from the left main coronary artery (LMCA) were seen. These had similar density during contrast injection as the main coronary trunk and filled

Video 2 Angiogram, cranial view, showing left main coronary artery diverticulae and the diffusely diseased left coronary artery.

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Video 3 Right coronary angiogram showing mild disease in proximal and mid segments and a discrete severe stenosis in the distal segment.

completely without any fistulous communication, or evidence of any thrombus (Videos 1 and 2). They measured 3.2×1.5 mm and 2.4×1.4 mm respectively. The diameter of LMCA was 4.06 mm. These outpouchings were <1.5 times of the adjacent native vessel diameter, excluding the criteria of aneurysm.¹ The patient was advised for coronary artery bypass grafting. But he refused it and he was followed up on medical management.

The dilatation of coronary arteries is usually referred to as aneurysmal disease (focal) or ectasia (diffuse).¹ It stems from arterial wall weaknesses most commonly as a result of atherosclerosis and less commonly by other etiologies including infections, inflammation, trauma or congenital defects.¹ Coronary aneurysm refers to a localised dilatation of coronary artery wall segment to greater than 1.5 times the adjacent normal segments.¹ On the contrary, a non-dilated outpouching of a coronary artery is rare and is referred to as a diverticulum, reported only twice in the literature previously.^{1 2} Coronary diverticulum is

under-recognised and under-reported likely because of its overlapping angiographic appearance with an aneurysm. It is unclear whether these diverticulae would predispose to thrombus formation or not.² Therefore, it is yet not possible to make any recommendations regarding the use of anticoagulants. Early recognition and follow-up with the use of better imaging modalities such as intravascular ultrasound and CT coronary angiography would help in understanding the pathogenetic mechanisms and possible sequelae associated with coronary diverticulae.

Learning points

- ▶ Coronary artery aneurysms and ectasia are characterised by an abnormal dilatation of a coronary artery.
- ▶ The term ectasia is reserved for a diffuse dilatation of a coronary artery, whereas an aneurysm refers to a focal dilatation of the vessel to greater than 1.5 times the diameter of the adjacent normal segments.
- ▶ A non-dilated outpouching of a coronary artery is rare and is referred to as a diverticulum.
- ▶ Identification of more cases of coronary diverticulum and their assessment by newer imaging modalities would help us in understanding the pathogenetic mechanisms behind their formation.

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