

Regurgitation of blood flow from the ectatic LAD artery as a cause of angina demonstrated during coronary angiogram

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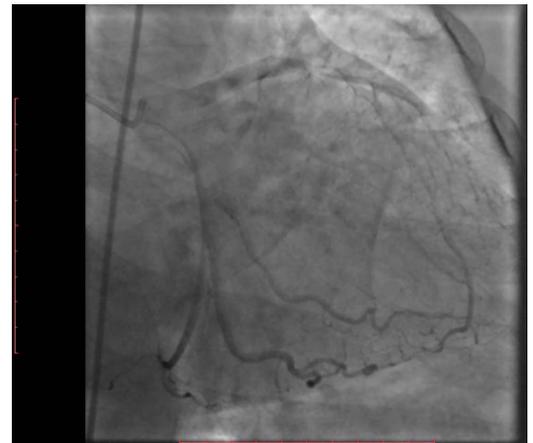
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DESCRIPTION

We present an interesting fluoroscopic angiographic image of a 55-year-old patient who presented to us with a 1-month history of breathlessness and inexplicable nocturnal angina. The ECG and echocardiography were normal and the treadmill test was positive. Coronary angiogram revealed dilated and ectatic blood vessels with systolic regurgitation of blood from the left anterior descending artery (LAD) into the left circumflex artery (LCX) (figure 1, videos 1–3). There was no other obstructive lesion in the vessels. The nocturnal angina was explained by the coronary ectasia and systolic reflux of blood from the LAD. The corrected thrombolysis in myocardial infarction (TIMI) frame count was slightly above the normal range in LAD and LCX (28 in LAD and 29 in LCX). The patient was put on antiplatelets, statins and nitrates on which her symptoms partially improved.

Papadakis *et al*¹ reported that the TIMI Frame Count was higher in ectatic vessels, and structural alterations including breakdown of the vessel wall could explain the increased susceptibility to thrombosis and vasospasm precipitating angina, which could be worsened by blood reflux possibly caused by the absence of antegrade flow gradient in diastole due to coronary dilation.

Although coronary ectasia is a relatively common finding in contemporary cardiological practice (in 3–8% of angiographic and 0.22–1.4% of autopsy series),² ectasia is usually seen in association with



Video 1 RAO caudal view showing ectatic coronary arteries with reflux of dye from the left anterior descending artery to the left circumflex artery

atherosclerosis, unlike this patient, and the pattern of reflux of dye seen from one vessel to another has never been described and is an interesting illustration of a pathophysiological phenomenon which could generally explain the occurrence of angina in such kind of patients. However, other pathophysiological mechanisms of angina-like microcirculatory abnormalities and endothelial dysfunction should also be considered as an important differential diagnosis in all such cases.

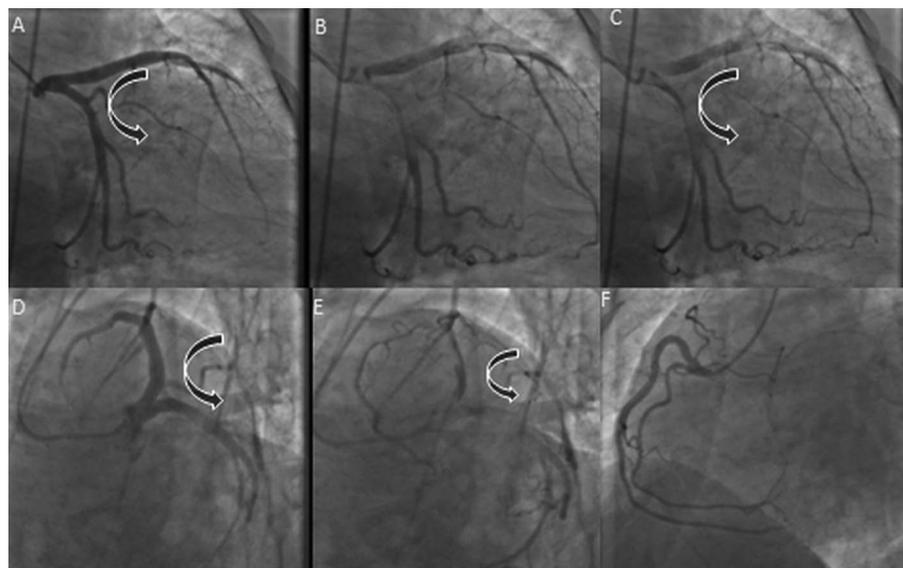


Figure 1 A collage of images showing the pattern of reflux in the coronary arteries seen in consecutive images frames.



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Video 2 LAO cranial view showing dye refluxing from the LAD to the LCX artery



Video 3 LAO caudal view showing dye reflux from LAD to LCX

Learning points

- ▶ Coronary ectasia can cause slow flow in coronaries which can explain the association of angina in these patients.
- ▶ Absence of antegrade flow gradient due to coronary dilation in systole can lead to reflux of blood from coronaries which can cause underperfusion of vital areas which, in turn, can lead to angina.
- ▶ Reflux of dye from coronaries in ectatic vessels has been demonstrated angiographically earlier and can be a pathophysiological explanation for the previously unexplained angina in patients with ectatic vessels.

Contributors IH, RV and NA have contributed to the drafting and finalising of the document and have helped in patient care.

Competing interests None.

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