

Extreme coronary artery tortuosity in association with tortuosity of the systemic arteries: a rare and challenging situation for the interventionist

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Accepted 8 May 2014

DESCRIPTION

Coronary tortuosity is conventionally defined as two or more consecutive 180° turns in a major epicardial artery assessed by visual estimation. It is a relatively uncommon finding during diagnostic angiograms and the presence of multiple tortuous segments is very rare and presents an interesting angiographic image.¹

We present an interesting angiographic image of an incidentally detected excessive coronary artery tortuosity in a middle-aged woman who presented to us for a diagnostic angiogram for the evaluation of atypical chest pain. The exercise ECG stress test was positive for inducible ischaemia. The patient was taken up for angiogram from the right radial route. Despite repeated attempts by experienced interventionists, we were unable to pass the sheath guide wire through the right as well as the left radial artery due to extreme tortuosity in the radial artery of both hands. The diagnostic angiogram subsequently performed from the right femoral arterial access revealed extreme tortuosity involving all the three coronary arteries with no flow-limiting lesion (figures 1–4, videos 1–4).

The patient was planned for conservative treatment directed at the management of microvascular disease and coronary artery spasm, which could have been the cause of chest pain in this patient.

The pathophysiological mechanism of coronary tortuosity is not clear. Traction and pressure in the lumen are known to lengthen a vessel and these



Figure 2 Anteroposterior cranial view showing extremely tortuous left anterior descending and left circumflex coronary arteries.

forces are opposed by a retractive force which maintains a stable length.² In a study of patients with hypertension and aortic regurgitation, it was found that female sex and pressure overload are predictive of coronary artery tortuosity. In another study it was postulated that the determinants of coronary tortuosity were sex, age, left ventricular volume and muscle mass.^{3 4}



Figure 1 Right anterior oblique caudal view showing extremely tortuous left anterior descending and left circumflex coronary arteries.



Figure 3 Left anterior oblique cranial view showing extremely tortuous left anterior descending and left circumflex coronary arteries.



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To cite: Parekh P, Agrawal N, Vasavada A, et al. *BMJ Case Rep* Published online: [please include Day Month Year] doi:10.1136/bcr-2014-204725

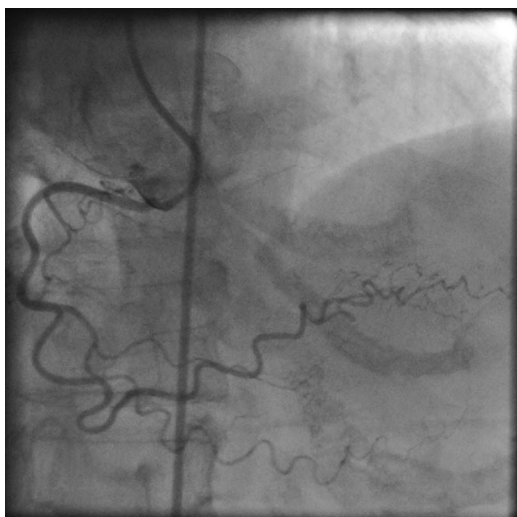
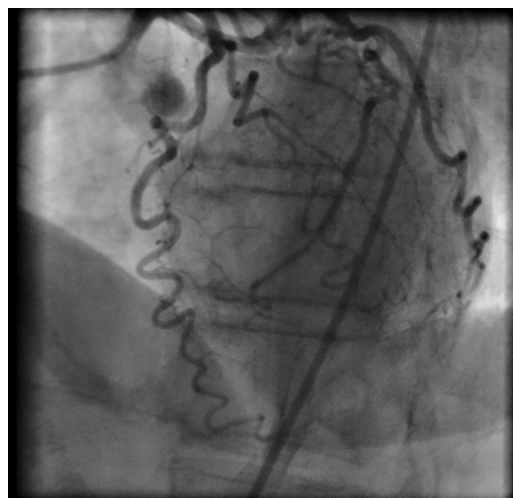


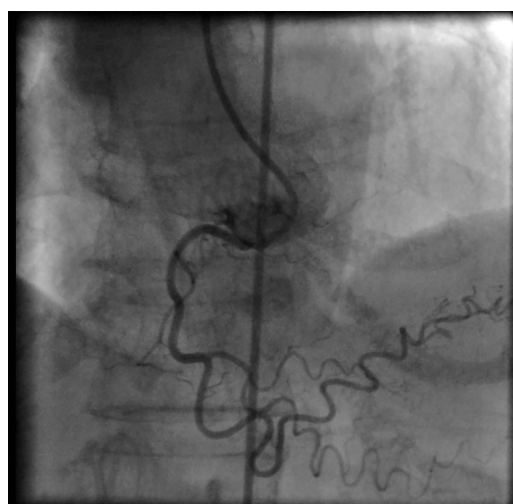
Figure 4 Left anterior oblique view showing extremely tortuous right coronary artery.



Video 3 LAO cranial view showing extremely tortuous Left anterior descending and Left circumflex coronary arteries.



Video 1 RAO caudal view showing extremely tortuous Left anterior descending and Left circumflex coronary arteries.



Video 4 LAO view showing extremely tortuous right coronary artery.



Video 2 AP cranial view showing extremely tortuous Left anterior descending and Left circumflex coronary arteries.

Learning points

- ▶ Extreme coronary artery tortuosity is an uncommon anomaly which is sometimes incidentally picked up during diagnostic angiograms which are performed for evaluation of atherosclerotic coronary artery disease.
- ▶ Most cases are usually asymptomatic and require no intervention if there is no coexistent atherosclerotic coronary artery disease.
- ▶ Performance of percutaneous interventions is a challenging task in cases with extreme tortuosity prior to the target atherosclerotic lesion with respect to the difficulty in manoeuvring the wires and stents across the tortuous segment.

Competing interests None.

Patient consent Obtained.

Provenance and peer review Not commissioned; externally peer reviewed.

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