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Low dose hybrid cardiac imaging in a 61-year-old male with atypical angina pectoris¹

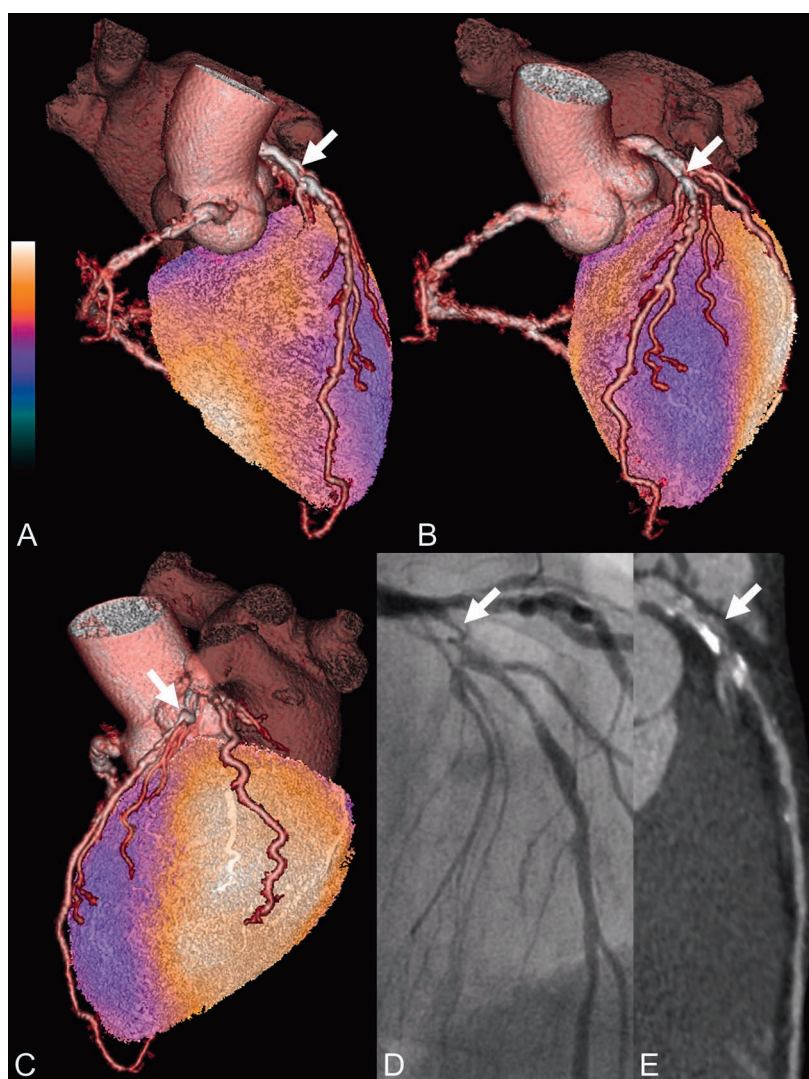
Case report

A 61-year-old male patient with hypertension and dyslipidaemia reported recurrent episodes of chest discomfort at peak perform-

ance during bicycle exercise but also at rest and at night. Cardiac stress testing on a treadmill ergometer was negative and the patient was subsequently referred to hybrid cardiac imaging.

Figure 1

Fused SPECT/CTCA images (A–C) demonstrate a large perfusion defect in the anterior myocardium (bluish colours). A significant stenosis in the proximal LAD was identified as the culprit lesion (indicated by white arrows in the SPECT/CTCA images A–C, conventional coronary angiography D, and curved multiplanar CTCA reconstructions E).



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^{99m}Tc-Tetrofosmin single-photon emission computed tomography (SPECT) images were acquired using a routine one day adenosine stress/rest protocol (effective radiation dose 8.6 mSv), and fused with a low-dose computed tomography coronary angiography (CTCA), using prospective electrocardiogram-gating [1] (1.5 mSv; performed with a Light-Speed VCT XT[®] scanner, GE Healthcare). CTCA revealed coronary artery disease with stenoses between 50–80% in all coronary arteries, but SPECT demonstrated a large reversible perfusion defect (ischaemia) only in the anterior myocardium. Therefore a culprit lesion could be identified with the fused SPECT/CTCA images in the proximal left anterior descending artery (LAD) (fig. 1). In this lesion coronary angioplasty with stent placement was subsequently performed.

Discussion

Hybrid cardiac imaging has previously been shown to reliably identify culprit lesions [2, 3], but high radiation exposure from CTCA has remained an issue of concern. Our first experience indicates that low dose hybrid cardiac imaging using prospective ECG-gating for CTCA [1] is feasible with good image quality and accurate findings if heart rate is below 63 bpm.

References

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