

## Ischemia-Driven Computed Tomography-Guided Revascularization of Chronic Total Occlusion Missed by Conventional Angiography

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A 71-year-old female with diabetes mellitus, a recent history of failed percutaneous revascularization of the chronic left anterior descending coronary artery (LAD) in-stent occlusion, and preserved left ventricular ejection fraction presented with persisting Canadian Cardiovascular Society class III angina. Coronary angiography failed to visualize the complete course of distal LAD (Fig. 1A and B, red squares). Single photon emission computed tomography showed significant ischaemia in the anteroseptal wall (Fig. 1C), while dual-source coronary computed tomography angiography (CCTA) demonstrated a wide and disease-free distal LAD (Fig. 1D, white squares). Following a balanced multidisciplinary discussion (Heart Team), an anastomosis between the left internal mammary artery and distal LAD was performed. The patient showed a complete resolution of ischaemia after 4 weeks from surgery (Fig. 2A), and the 6-month follow-up CCTA confirmed excellent patency of the bypass graft (Fig. 2B).

Coronary angiography-guided revascularization of chronic total occlusion (CTO) has been shown to improve long-term survival in patients with significant ischemia.<sup>1,2</sup> However, since coronary angiography has considerable limitations related to failure of visualization of the distal CTO observed intraoperatively, it can be a major reason for deferral from CTO revascularization and poor patient prognosis.<sup>3,4</sup> In our case, the presented improvement in myocardial

ischemia after CT-guided revascularization of CTO missed by conventional angiography represents an indirect evidence of CCTA positive finding. This illustrates the rationale for performing CCTA in ischemia-producing CTO with ambiguous distal vessel anatomy in conventional angiography.

### References

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• The authors have no financial conflicts of interest.

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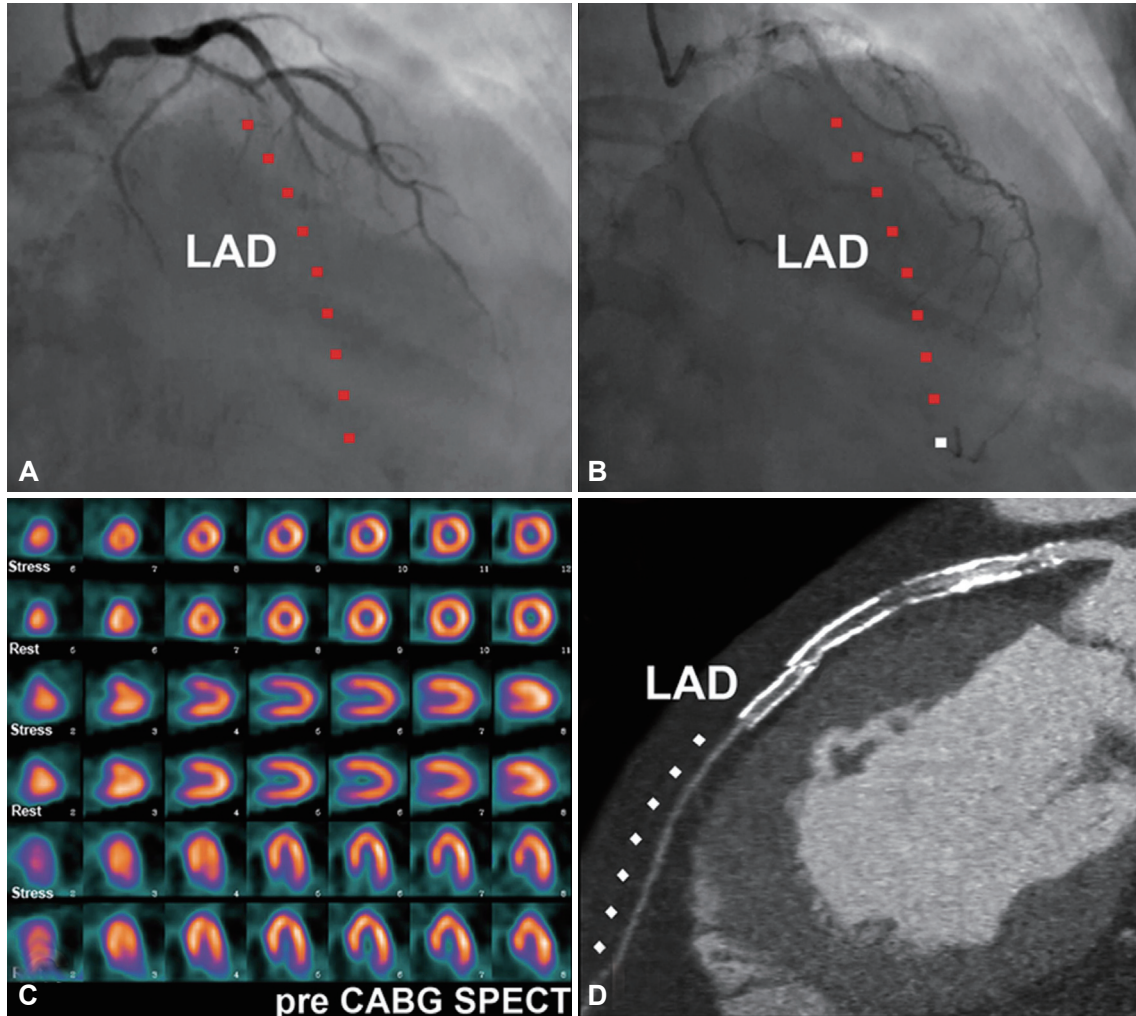


Fig. 1.

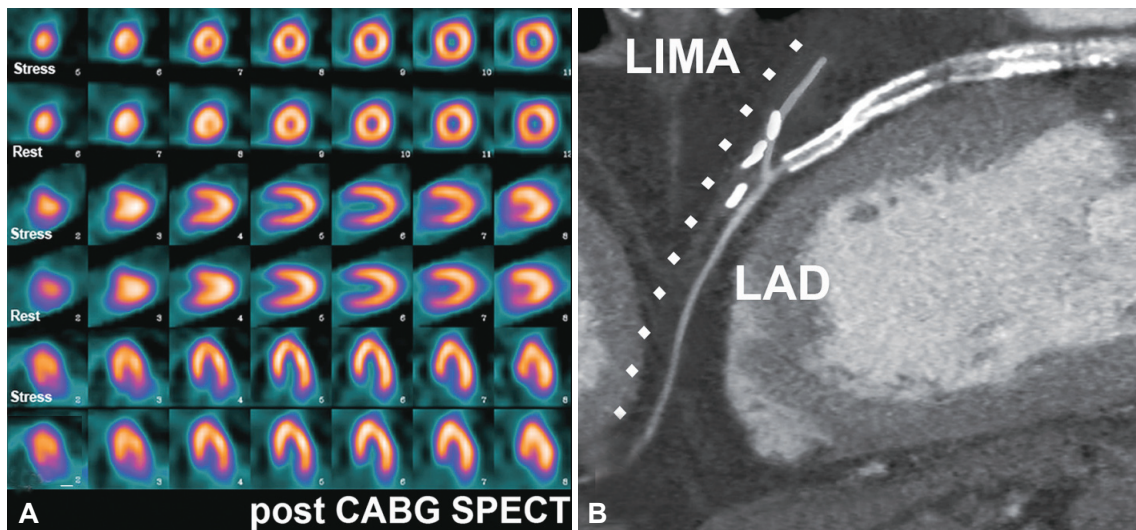


Fig. 2.