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Evaluation of Changes in Coronary Ischemia After Lipid-Lowering Therapy Using Computed Tomography Angiography

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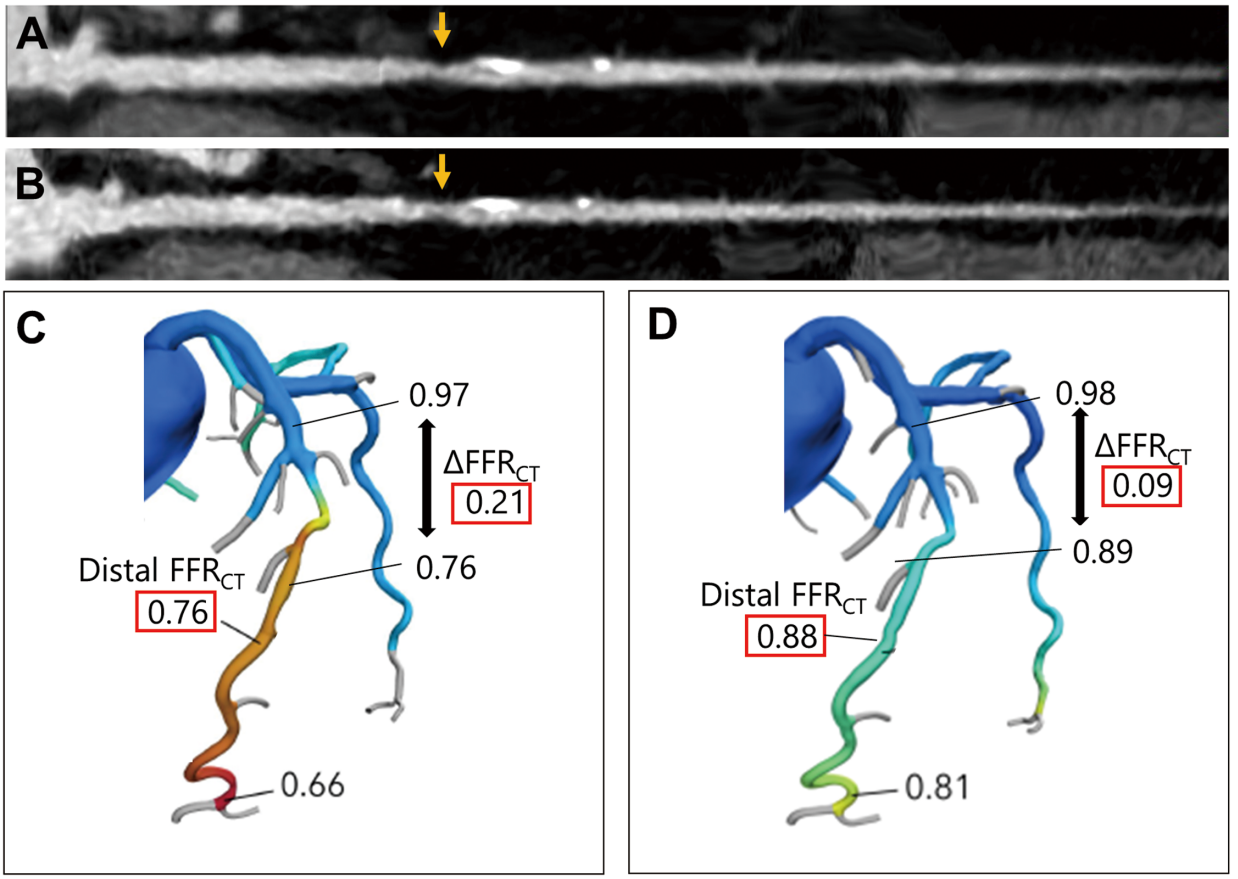

Figure. (**A**,**B**) Stretched views show moderate stenosis at the middle of the left anterior descending artery (arrow) at baseline (**A**) and follow-up (**B**). (**C**,**D**) Three-dimensional model showing fractional flow reserve derived from coronary computed tomography angiography (FFR_{CT}) values at baseline (**C**) and follow-up (**D**).

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A 67-year-old man who had been taking azilsartan 20 mg/day and eicosapentaenoic acid 1.8 g/day presented with atypical chest pain and underwent coronary computed tomography angiography (CCTA) to assess coronary artery disease as described in the **Supplementary Methods**. CCTA showed a 50–69% stenosis with low-density plaques in the proximal left anterior descending artery (**Figure A**; **Supplementary Figure**). Fractional flow reserve on CCTA (FFR_{CT}), measured approximately 2 cm distal to the stenosis, indicated positive ischemia (**Figure C**). Furthermore, the difference in FFR_{CT} values proximal and distal to the lesion (ΔFFR_{CT}) was 0.21 (**Figure C**). At the 2-year follow-up after starting rosuvastatin 5 mg/day, low-density lipoprotein concentrations had decreased from 146 to 56 mg/dL with subsequent improvement in symptoms. CCTA showed an improvement in distal FFR_{CT} and ΔFFR_{CT} from 0.76 to 0.88 and from 0.21 to 0.09, respectively (**Figure D**), and a mild improvement in the stenosis with an increase in density (**Figure B**; **Supplementary Figure**).

This case demonstrates the usefulness of FFR_{CT} for evaluation of coronary ischemia after lipid-lowering therapy. FFR_{CT} predicts lesion-specific ischemia compared with invasive FFR. Patients with distal FFR_{CT} >0.8 have a better prognosis.[1] A study also demonstrated that greater ΔFFR_{CT} is associated with an increase in cardiovascular events.[2] Our patient's distal FFR_{CT} and ΔFFR_{CT} improved after lipid-lowering therapy, suggesting the usefulness of FFR_{CT} for clinically assessing improvement in coronary ischemia with lipid-lowering therapy.

References

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Supplementary Files

Please find supplementary file(s);
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