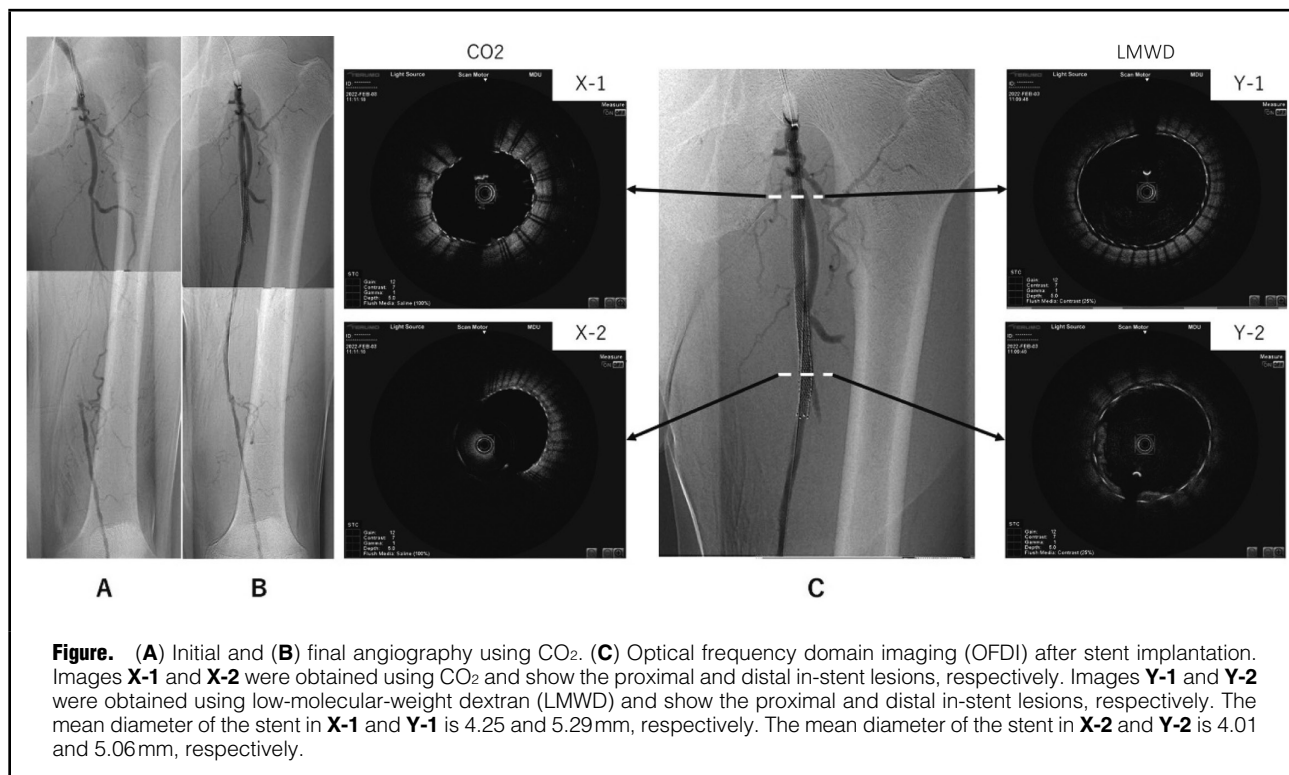


Stent Size Reduction Phenomenon in Optical Frequency Domain Imaging Using CO₂

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In Japan, optical frequency domain imaging (OFDI) is an imaging method that can be used in endovascular therapy (EVT) of femoropopliteal artery lesions. OFDI is useful for analyzing vessel structure because of the higher resolution images compared with intravascular ultrasound.¹ It was reported that, when using OFDI, CO₂ is a viable alternative to standard contrast media for the exclusion of blood cells in EVT images.²

The patient was an 80-year-old man with an occlusion of his left superficial femoral artery (SFA). A 6-Fr guiding sheath was inserted from his ipsilateral common femoral artery. A 0.014-inch wire successfully passed the lesion. A 6.0mm×

120mm Eluvia stent (Boston Scientific, Marlborough, MA, USA) was deployed in the SFA. Subsequent observation using OFDI showed that the mean diameter of the stent was approximately 20% smaller when using CO₂ as opposed to low-molecular-weight dextran (LMWD; **Figure A–C**). Although not specifically involving stent deployment, a similar result was reported when performing optical coherence tomography for SFA, namely that the diameter of the vessel lumen using LMWD was 30% larger than when using CO₂ as the contrast medium because of the inability of OFDI consoles to correct the index of refraction of near infrared radiation in CO₂.³

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This is the first reported case identifying that OFDI can show a smaller stent area and diameter when using CO₂ as opposed to LMWD.

Disclosures

This procedure followed the “Declaration of Helsinki” and Ethical Standards of the Responsible Committee on Human Experimentation.

IRB Information

The Ethics Committee of Tokeidai Memorial Hospital granted an exemption from requiring ethics approval.

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