Coronary vessels distal to chronic total occlusion (CTO) are frequently accompanied by diffuse luminal narrowing induced by negative remodeling or atherosclerotic plaque. Although flow-mediated vasodilation is anticipated after effective antegrade flow restoration, final vasomotor response of distal segment is often unexpected and should be considered in the stenting strategy.

A 48-year-old man, a heavy smoker with dyslipidemia and hypertension, was referred after failed percutaneous coronary intervention (PCI) of CTO in the right coronary artery (Figure 1A). CTO-PCI was attempted via primary retrograde approach through a septal collateral because

Figure 1. Baseline coronary angiography and procedure. (A) Diagnostic coronary angiography demonstrated CTO of the right coronary artery. (B) Because of the ambiguous proximal cap, a retrograde approach through a septal collateral was selected. (C) Direct wire crossing technique with an intermediate stiff Ultimate Bros 3 (Asahi Intecc, Aichi, Japan) guidewire was used to cross the CTO lesion. (D) Retrograde wire was externalized into the guiding catheter.

CTO = chronic total occlusion.
of ambiguous proximal cap (Figure 1B-D). PCI was successful with two drug-eluting stent implantation, 4.0×22 and 3.5×38 mm, in the middle segment (Figure 2A-C). Diffuse luminal narrowing at the distal bed persisted after flow restoration and repeated intracoronary nitroglycerin administrations (Figure 2D, Supplementary Video 1). Angiographic follow-up at 9 months showed significant improvement in the whole distal bed diameter with unexpected “true” tight stenoses within the enlarged vessel (Figure 3A, Supplementary Video 2). These lesions were successfully treated with another 3.5×30 mm stent (Figure 3B, Supplementary Video 3).

The treatment strategy has been inconsistent for luminal narrowing distal to CTO lesion, which undergoes variable degrees of diameter improvement after successful CTO recanalization.2) Predicting the original distal bed vessel size or differentiating the vessel shrinkage and plaque burden contribution to luminal narrowing is difficult owing to limited

Figure 2. Stent implantation and final result. (A) A distal landing zone was identified after predilation of the CTO lesion. (B, C) Two drug-eluting stents (Resolute Onyx, 4.0×22 and 3.5×38 mm) were implanted in the middle segment of the right coronary artery. (D) Final result with angiographic evidence of diffuse luminal narrowing of distal bed (Supplementary Video 1). CTO = chronic total occlusion.

Figure 3. Angiographic follow-up. (A) A 9-month angiographic follow-up showed a significant improvement in the diameter of the whole distal bed, with an unexpected severe “true” stenosis within the enlarged vessel. (B) A 3.5×30 mm Resolute Onyx stent was used to treat the lesion (Supplementary Videos 2 and 3).
practical methods, watchful waiting with follow-up angiography is a reasonable strategy to decide the final treatment for such lesions.

**SUPPLEMENTARY MATERIALS**

**Supplementary Video 1**
Persistent luminal narrowing of distal bed after flow restoration

Click here to view

**Supplementary Video 2**
Unexpected “true” tight stenoses within the enlarged vessel at 9-month follow-up

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**Supplementary Video 3**
Successful implantation of a 3.5×30 mm stent in the distal segment

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