

SHORT COMMUNICATION

Intravascular Ultrasound Findings after Successful Guidewire Passage With a Retrograde Narrowing Looped Wire Technique

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The looped wire technique (LWT) is often performed during endovascular therapy (EVT) for chronic total occlusive (CTO) lesions, especially when conventional true lumen crossing fails.¹ LWT is considered a subintimal crossing, which sometimes causes problems such as insufficient luminal gain and severe dissections that require provisional stenting.² However, little is known regarding the guidewire pathway after LWT.

A 70 year old man with a history of diabetes mellitus and smoking (one pack per day) and moderate claudication

(maximum walking distance 170 m) received endovascular therapy for his right superficial femoral artery (SFA) CTO (Fig. 1A). Identification of the SFA CTO entry was impossible; therefore, a retrograde first strategy was performed; the distal SFA was punctured and a 0.018 inch polymer jacket guidewire (Gladius MG18 PVES, Asahi Intecc, Aichi, Japan) and microcatheter (CX-I, COOK Medical, Bloomington, IN, USA) were retrogradely advanced into the CTO segment. Conventional intraluminal wiring failed; therefore, LWT was performed. During the LWT, the guidewire loop

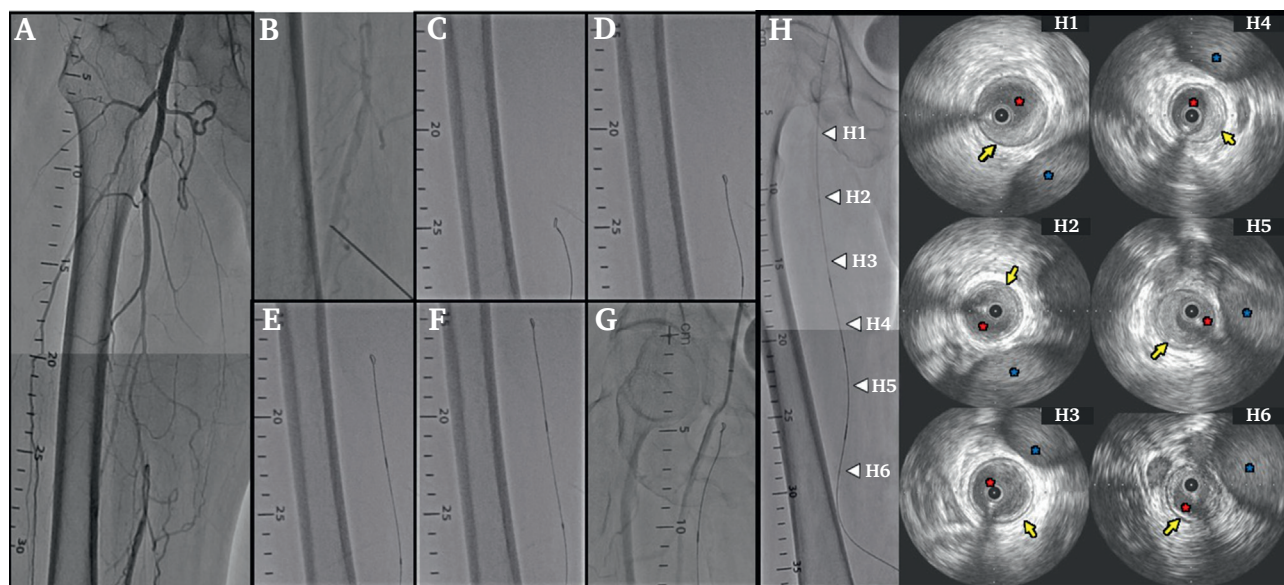


Figure 1. Crossing of the SFA CTO; narrow looped wire technique. Right SFA CTO (A). Distal SFA puncture was performed (B). A 0.018 inch guidewire was advanced into the CTO segment with the smallest loop (C–G), and IVUS findings show complete true lumen passage (H, red asterisk: true lumen, yellow arrow: media, and blue asterisk: femoral vein). CTO = chronic total occlusion; IVUS = intravascular ultrasound; SFA = superficial femoral artery.

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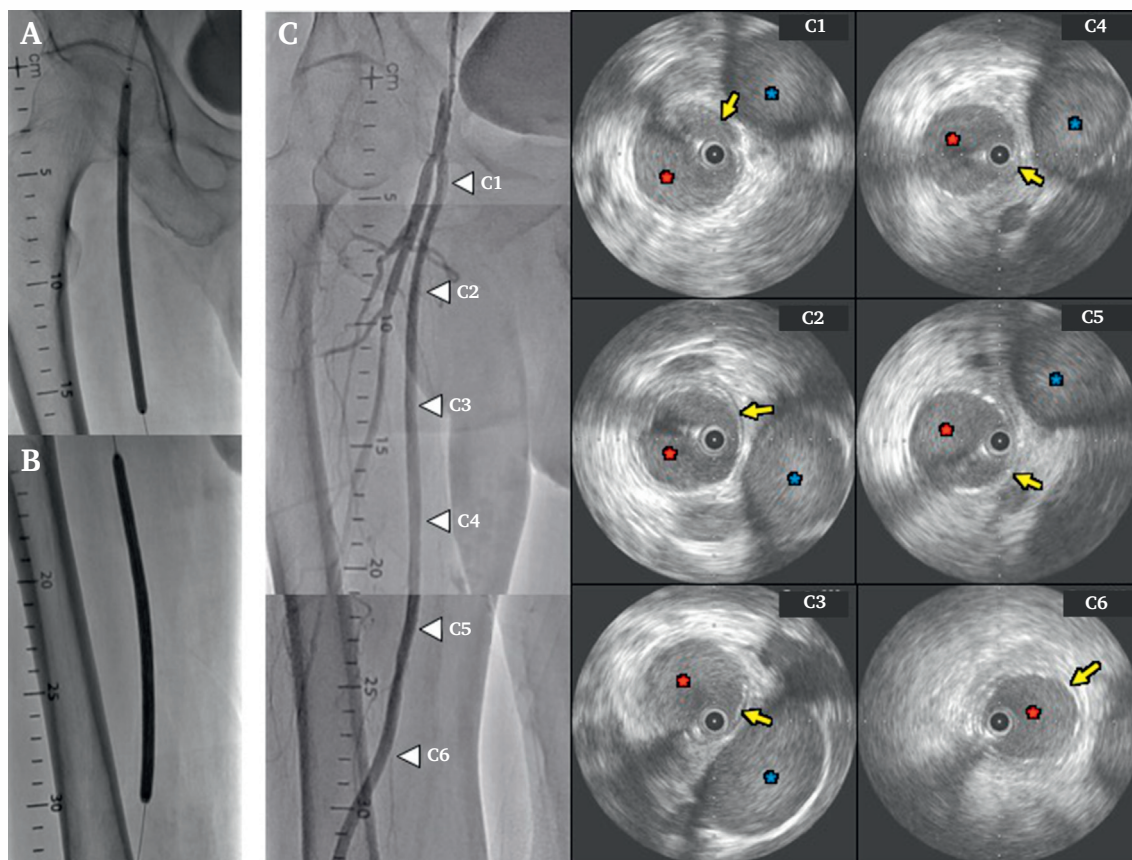


Figure 2. Final angiogram and IVUS. Dilation with two 6.0 mm drug coated balloons (A, B). The final angiogram and IVUS show good results without any residual stenosis or dissections (C, red asterisk: true lumen, yellow arrow: media, and blue asterisk: femoral vein).

was kept as narrow as possible (Fig. 1C–G, Video 1). After identification of the entry to the SFA CTO, additional antegrade approach and the rendezvous technique were demonstrated. Finally, the guidewire successfully crossed the CTO. After angioplasty with a 3.0 mm balloon, intravascular ultrasound (IVUS) was performed. The IVUS showed that the guidewire had completely crossed the true lumen (Fig. 1H, Video 2). After angioplasty with a 6.0 mm balloon, two drug coated balloons (IN.PACT Admiral, Medtronic, Minneapolis, MN, USA, Fig. 2A and B) were used. The final angiogram and IVUS showed sufficient luminal gain without any residual stenosis or dissections (Fig. 2, Video 3).

Supplementary video related to this article can be found at <https://doi.org/10.1016/j.ejvsf.2020.07.001>

The following is/are the supplementary data related to this article: video 11

video 2

video 3

In this case, LWT with narrow loop was performed in the retrograde fashion. The guidewire pathway was not in the subintimal space, and complete true lumen tracking was demonstrated by the IVUS findings. This curious situation is

often experienced after CTO crossing with a narrow loop. Enlarged loops often create huge subintimal spaces; however, LWT with a narrow loop makes possible true lumen crossing. Therefore, during the LWT, the guidewire loop should be kept as narrow as possible. Further investigation is needed to confirm these clinical experiences.

CONFLICTS OF INTEREST

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