

Coronary Chronic Total Occlusion Antegrade Wire Technique to Successfully Cross a Common Iliac Chronic Total Occlusion from Retrograde Access



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Percutaneous endovascular intervention is the preferred modality of revascularization for iliac arterial obstructive disease. Chronic total occlusions (CTO) of the iliac arteries can be uniquely challenging, as typically utilized polymer jacketed 0.035 in wires have a tendency to enter subintimal planes within the iliac artery or aorta, which consequently require complicated re-entry wire techniques. We present a case of a common iliac chronic total occlusion, initially unable to be crossed with a traditional 0.035 in polymer jacketed guidewire due to subintimal entry. Instead, using an antegrade coronary CTO wire escalation technique with a 0.014 in coronary CTO guidewire, the iliac occlusion was successfully crossed via the true lumen. © 2020 Elsevier Inc. All rights reserved. (Am J Cardiol 2020;129:118–119)

Percutaneous endovascular intervention (PEI) is the preferred modality of revascularization for iliac arterial obstructive disease. For PEI of iliac chronic total occlusion (CTO), given the size, calcification, and tortuosity of the iliac vessels, 0.035 in guidewires are almost exclusively used in the iliac vascular bed.¹ Iliac occlusions however are challenging by PEI, as standard 0.035 in polymer jacketed wires have a tendency to track into subintimal planes within the arterial vascular wall. We describe a case of a common iliac CTO, initially unable to be crossed with a standard polymer jacketed 0.035 in guidewire due to subintimal entry into the aorta. However, using an antegrade coronary CTO wire escalation technique, the CTO was successfully crossed with a 0.014 in tapered tip, noncoated, coronary CTO guidewire from retrograde access.

Case Report

A 62-year-old man presented for PEI of a 100% right common iliac occlusion. Initial angiographic evaluation confirmed 100% stenosis of the right common iliac artery (Figure 1). After bilateral common femoral artery access was obtained, an Angled Glidewire 0.035 in 180 cm (Terumo Interventional Systems) was inserted from the right common femoral artery, but was unable to successfully cross the right common iliac CTO. A Minnie Support Catheter 0.035 in 150 cm (Teleflex) was used for augmented support, however the Glidewire found a subintimal plane which tracked into the distal aorta. Wanting to avoid complex true lumen re-entry techniques, the decision was made to try a coronary CTO wire escalation technique in hopes of gaining true lumen access. Using a Confianza Pro 12 percutaneous transluminal coronary angioplasty (PTCA) .014 in 300 cm (Asahi Intecc) wire within a

Turnpike Spiral Support Catheter 135 cm (Teleflex), the common iliac CTO was successfully crossed within the true lumen (Figure 2).

Distal aortogram via the left femoral access confirmed true lumen wire access into the aorta. Over the 0.014 in coronary CTO wire, balloon angioplasty was performed on the right common iliac CTO with 4.0 mm X 20 mm Apex MR coronary balloon (Boston Scientific). This allowed for the 0.035 in Minnie support catheter to be advanced over the 0.014 in coronary wire to ultimately facilitate wire exchange with a workhorse 0.035 in wire. The right common iliac was then ballooned with an Armada 35 balloon (Abbott). Subsequently, the right iliac was stented with a Visi-Pro 7 mm X 27 mm X 80 cm (Medtronic). Stenting of the right iliac created a left ostial iliac stenosis due to plaque protrusion (Figure 3), and as such the left iliac was stented with a Visi-Pro 10 mm X 27 mm X 80 cm (Medtronic) in a traditional kissing stent technique (Figure 4). At 3 month follow-up, patient had complete resolution of his claudication.

Discussion

PEI remains the revascularization method of choice for lower extremity aorto-iliac peripheral arterial disease, given the higher morbidity and mortality associated with surgical revascularization.^{2,3} However, crossing iliac CTOs can be challenging, as standard 0.035 in polymer jacketed guidewires have a tendency to track subintimal. When trying to wire an iliac CTO, we recommend first attempting to cross the occlusion using a standard 0.035 in polymer jacketed guidewire. In the event the CTO lesion is unable to be successfully crossed with a 0.035 in polymer jacketed guidewire, the presence of certain features may clue an operator into reattempting with an alternate guidewire. Tactile response suggesting a hard fibrous calcific cap may be better penetrated with a stiffer 0.014 in guidewire, in theory similar to coronary CTOs. Favorable anatomy with minimal tortuosity would allow for use of a smaller, more stiff guidewire. Moreover, while larger 0.035 in guidewires provide better support, selection of a smaller coronary Percutaneous transluminal

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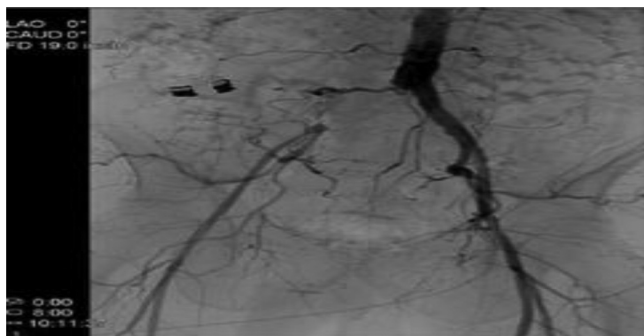


Figure 1. Right common iliac CTO.

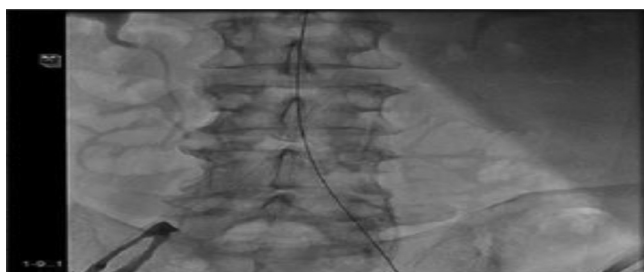


Figure 2. 0.014 in coronary CTO guidewire successfully crossed through right common iliac CTO, left iliac with standard 0.035 in PEI guidewire.



Figure 3. New left common ostial iliac stenosis due to plaque protrusion after deployment of right common iliac stent.

coronary angioplasty guidewires allow for more maneuverability and flexibility.⁴

Antegrade wire escalation has been proven to be a highly effective technique in crossing coronary CTOs, especially in less complex lesions.⁵ This same method applied to the



Figure 4. Final angiogram post bilateral common iliac stents.

larger diameter iliac arteries would in theory allow for even greater success with true-lumen CTO re-entry. Reattempting iliac CTO intervention using a standard antegrade CTO wire escalation approach (although in this case from retrograde access) offers a simple alternative with a high chance of accessing the distal true lumen before consideration of more advanced techniques.

We report a case of a common iliac CTO, initially unable to be crossed using a standard polymer jacketed 0.035 in guidewire due to subintimal entry within the distal aorta, that was successfully crossed by a 0.014 in tapered tip, noncoated, PTCA guidewire directed from retrograde access. To our knowledge, the approach of using a standard antegrade coronary CTO wire escalation technique, applied to an iliac CTO from retrograde femoral access, has not been described in the literature to date.

Acknowledgment

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