Difficult vessel navigation and how to optimize crossability

–what are the options?

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CTO Prevalence

CTO is a common occurrence in PAD

• Reported in up to 40% of symptomatic patients¹

CTO procedure failures are primarily due to the inability to:  
- Penetrate proximal cap  
- Navigate side branches  
- Re-enter distal true lumen

CTO Challenges

Failure to cross lesions, with possible procedure failure, may lead to important burdens such as lengthy procedures, increased radiation exposure, periprocedural complications and repeat intervention$^{3,4}$

Different Lesion types need Different Devices

- Cross device requires more pushability with increased lesion length.
- Angled tip device may help to navigate into bifurcated vessel.
CTO Challenges

Clinical literature has shown CTO crossing success rates of 5% to 66% with primary wire-catheter²

- This may result in sub-intimal deflection and subsequent dissection which may impair and isolate the new lumen from collateral circulation⁵,⁶
- Supporting Catheter Plus guide wire will definitely improve the success rate.


Keys To Success:
Selecting a proper guide wire for crossing

- Wire escalation approach
- Frequent wire changes
- Wire selection for penetrating the cap, versus navigating the middle of the lesion, versus device delivery
- Shaping of the tip
- Use of a supporting catheter
Supporting Catheter Choice
SEEKER®: Smallest Tip Profile

Superior Tip Entry Profile increases the crossability of the supporting Catheter

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Precise Ruler instead of maker band helps to measure the lesion/vessel length, especially the tortuous vessel.
Comparing Normal Catheter with a Supporting Catheter
A Special device in special time
CTO Crossing Technique

- Introluminal / Subintimal Angioplasty
- Antegrade / Retrograde
- SAFARI
True Lumen Crossing Matters
In the CENTRAL Study of SFA CTOs

- **90.7%** technical crossing success rate\(^3\)

- **Majority** of lesions were crossed **intraluminally**\(^1\)

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\(^1\) Intraluminal (true lumen) crossing is defined as ≥90% central lumen crossing; \(n=43\) \(^2\) Majority subintimal crossing is defined as <50% central lumen crossing; \(n=13\) \(^3\) Technical success is defined as the ability to cross the CTO in the central vessel lumen with the recanalization catheter and/or any conventional guidewire after the use of the catheter. Torey J, et al. Infrapopliteal CTO Recanalization Assessed by Intravascular Ultrasound: Results of the CENTRAL Study. J Invasive Cardiol. 2016;28(11):430-439
Retro/Antegrade Crossing - CTO Cap Morphology

PREFERRED STRATEGY:
FOLLOW CONCAVITY ANTEGRADE

ANTEGRADE CONCAVE
RETROGRADE CONVEX

PREFERRED STRATEGY
FOR INCONGRUOUS CAPS:
ANTEGRADE-RETROGRADE

ANTEGRADE CONCAVE
RETROGRADE CONVEX

PREFERRED STRATEGY:
FOLLOW CONCAVITY RETROGRADE

ANTEGRADE CONVEX
RETROGRADE CONCAVE

C.R. Bard ©2016
Antegrade opening of the peroneal and post tibial artery
Retrograde opening by branch
THANK YOU ALL FOR YOUR ATTENDENCE
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