My idea on intimal tracking
-Ideal and practical strategy using intraluminal tracking for infrainguinal lesions-

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Disclosure

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I have the following potential conflicts of interest to report:

☐ Consulting

☐ Employment in industry

☐ Stockholder of a healthcare company

☐ Owner of a healthcare company

☒ I do not have any potential conflict of interest
My opinion: Intalumial tracking has a clinical value when we treat the short FP-CTO lesion with severe calcification.
Revascularization for FP-CTO

Subintimal versus intraluminal tracking

**Subintimal angioplasty**

**Advantage**
1. Simplicity
2. Low cost
3. Short procedure time

**Disadvantage**
1. Insufficient dilation and recoil
2. Re-entry often becomes difficult (when the wire passes the distal true lumen after excessive reach beyond the subintimal space)
3. The lesion may become longer than the original length
4. Serious complications (vessel rupture etc.)

**Intraplaque angioplasty**

**Advantage**
1. Response to the balloon is favorable
2. Sufficient post stenotic dilation
3. Favorable acute results

**Disadvantage**
1. Outcome depends on the experience of the surgeon
2. High cost
3. Long procedure time

Subintimal angioplasty

Subintimal angioplasty $\equiv$ insufficient MSA (minimum stent area)

→ Restenosis

Subintimal versus intraluminal approach for long FP-CTO

**Procedure time**
- Intraluminal approach
- Subintimal approach
- 117 ± 59mm vs. 93 ± 42mm (p<0.01)

**Strategy conversion**
- Intraluminal → subintimal
- 25% (163/653)

**Limitations**
1) Retrospective analysis, 2) no IVUS data

**Conclusion**
1) Initial result and 3-year patency was similar.
2) Given the longer procedure time and high crossover rate, subintimal approach may be preferred in FP-CTO

ZEPHYR sub-analysis
Impact of “Subintimal Stenting” on outcomes

A.  
- Intraluminal angioplasty
- Subintimal angioplasty

Restenosis rate
- at 1 year
  - Intraluminal: 50%
  - Subintimal: 25%
  - P = 0.352
- at 2 years
  - Intraluminal: 40%
  - Subintimal: 30%
  - P = 0.648

B.  
- Intraluminal angioplasty
- Subintimal angioplasty

MALE rate
- at 1 year
  - Intraluminal: 30%
  - Subintimal: 40%
  - P = 0.267
- at 2 years
  - Intraluminal: 20%
  - Subintimal: 25%
  - P = 0.183

C.  
- Intraluminal angioplasty
- Subintimal angioplasty

Occlusion rate
- at 1 year
  - Intraluminal: 10%
  - Subintimal: 5%
  - P = 0.170
- at 2 years
  - Intraluminal: 15%
  - Subintimal: 10%
  - P = 0.068

D.  
- Intraluminal angioplasty
- Subintimal angioplasty

Stent thrombosis rate
- at 1 year
  - Intraluminal: 4%
  - Subintimal: 2%
  - P = 0.954
- at 2 years
  - Intraluminal: 3%
  - Subintimal: 4%
  - P = 0.593

The lesion with **calcified nodule**

Hopeless for optimal dilation

Self-expandable stent (S.M.A.R.T stent) and non-complaiant balloon with **36atm**

⇒ suboptimal dilatation ⇒ early reocclusion

Courtesy with Dr. Kozuki
Conclusion: PACSS grade 4 calcification was independently associated with restenosis after FP-EVT.

My algorithm of recanalization strategy for FP-CTO focusing on “intimal tracking”

Vessel calcification

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(−)

Subintimal tracking
* Intentional approach

Long FP-CTO
(>15cm, TASC C/D)

Subintimal tracking
* Intentional approach

Short FP-CTO
(<15cm, TASC A/B)

Intraluminal tracking
* To penetrate the central with CTO wire
Subintimal stenting for long CTO without calcification -Angiography and IVUS assessment-

Subintimal stenting for long CTO with calcification
-Intentional subintimal approach with 0.035 Terumo wire-
Subintimal stenting for long CTO with calcification
-Intentional subintimal approach with 0.035 Terumo wire-
Intraluminal tracking for short CTO with calcification - To penetrate the central using 0.014 inch CTO wire (Asahi).

- 69 yrs Male
- Chief complain lifestyle-limiting claudication
- Risk factors HTN, DL, DM, AP (post PCI)
- ABI
  Right 0.63, Left 1.04
- Target lesion Rt SFA short-CTO
Intraluminal tracking for short CTO with calcification
-To penetrate the central using 0.014 inch Halberd wire-

Coil + Hydrophilic coating  <Uncoated ball tip>
Tip load:  12.0gf
Hydrophilic coating length: 33 cm
Length lineup:  200, 235, 300 cm
Intraluminal tracking for short CTO with calcification - To penetrate the central using 0.014 inch Halbert wire -
ABI 0.63 ⇒ 1.01
My opinion:
Intalumial tracking has a clinical value for
1) preservation of micro arteries,
2) penetrating the short segment BK-CTO.
Frequency of Complex BTK lesion  
(Long lesion and CTO in OLIVE registry)

- CTO: 64%
- LL>15cm: 75%

Early Recoil @ 15 min.

Restenosis @ 1 year

Limitation of BTK angioplasty


Current situation of **DCB** (drug-coating balloon) in **BTK** lesions

![Graph showing restenosis rates for IN.PACT DEEP and PTA at 12 months with P=0.609.](image)

- **IN.PACT DEEP**: 41.0%
- **PTA**: 35.5%

![Graph showing restenosis rates for Passeo-18 Lux and PTA at 6 months with P=0.298.](image)

- **Passeo-18 Lux**: 17.1%
- **PTA**: 26.1%

Intraluminal tracking for **short CTO of pedal arch**

- To penetrate the central using **0.014 inch Gladius wire**

**Polymer jacket**

**Hydrophilic coating**

**Tip load:** 3.0gf
Intraluminal tracking for long CTO of ATA
- To penetrate the central using 0.014 inch Gladius wire

Polymer jacket
Hydrophilic coating
Tip load: 3.0gf
In FP lesions, intalumial tracking has a clinical value when we treat the short FP-CTO lesion with severe calcification.

In BTK lesions, intalumial tracking has a clinical value for 1) penetrating short segment BK-CTO, 2) preservation of micro arteries.

For achieving better penetration, “Asahi wire” is the best weapon for CTO recanalization.