

# Current Strategy for SFA\_CTO Procedure

*Sendai Kousei Hospital*  
*Naoto Inoue MD, FSCAI, FJCC, FAHA*

# Conflict statement

**Speaker's name: Naoto Inoue**

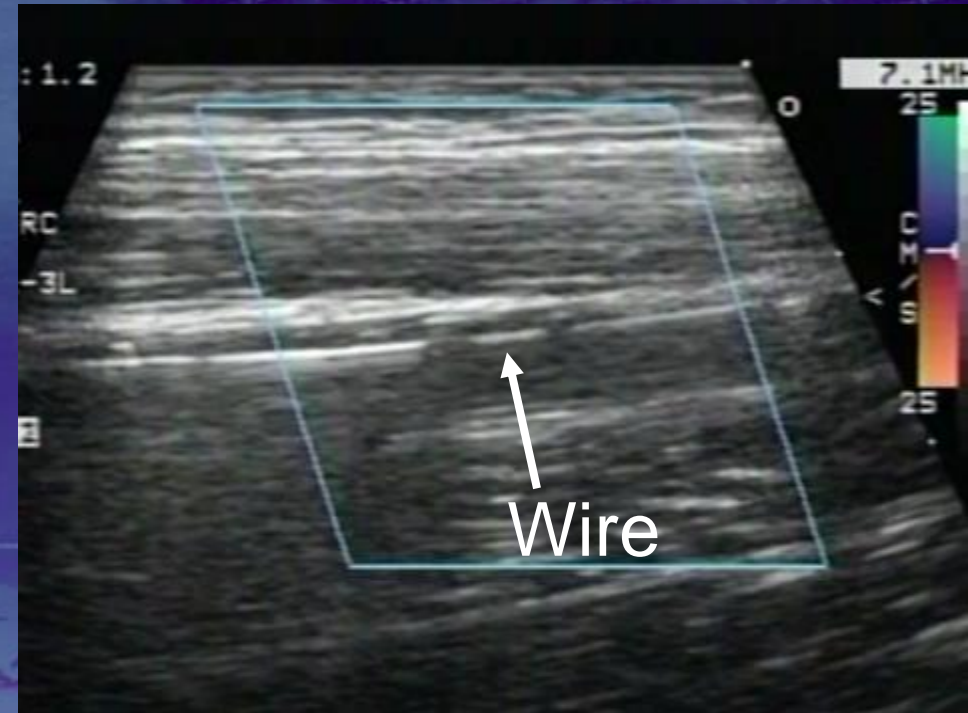
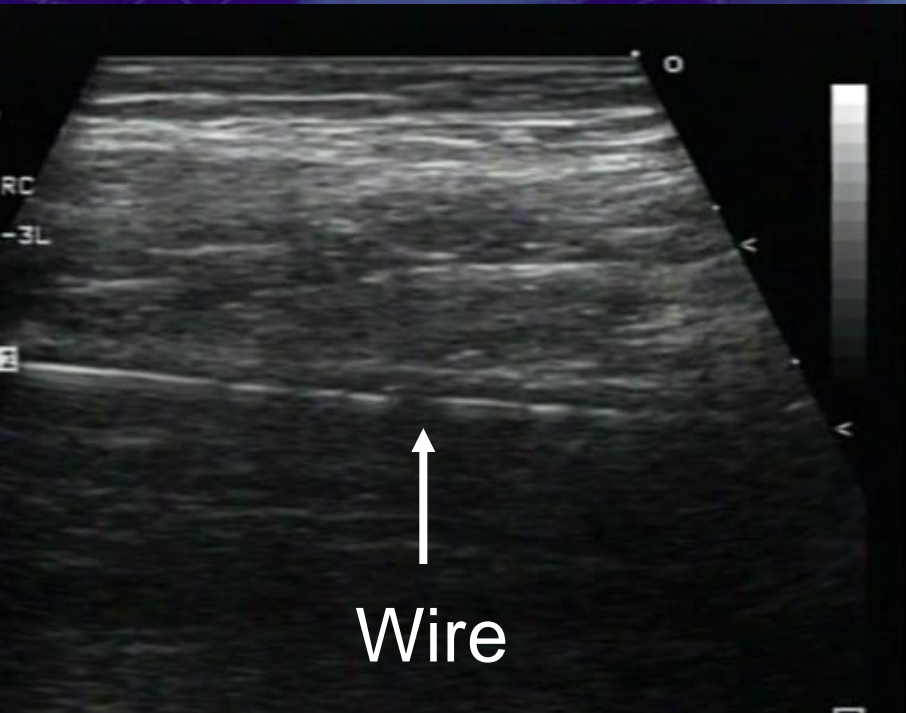
- **I have the following potential conflicts of interest to report:**
  - Consulting-Japan Life Line, Kaneka, Medicon
  - Employment in industry
  - Stockholder of a healthcare company
  - Owner of a healthcare company
  - Other(s)
- I do not have any potential conflict of interest**

# Roadmap technique





# Echo guide technique



- Recanalization through the true lumen
- Reduce radiation exposure
- Difficult to show the whole segment of SFA

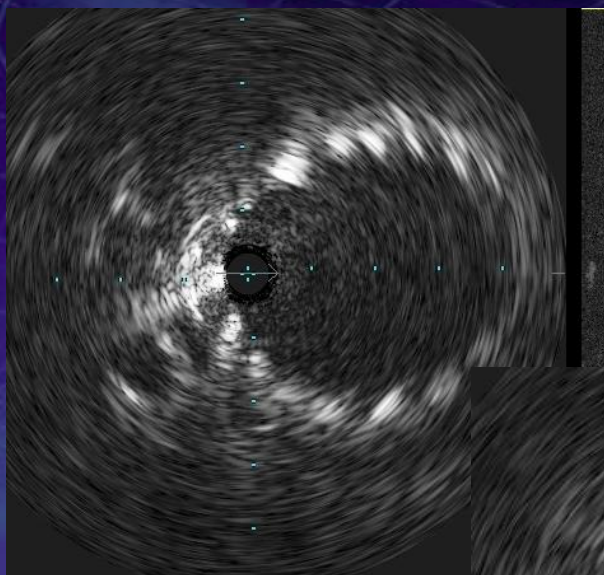
# Subintimal technique or intraluminal technique Which is better?



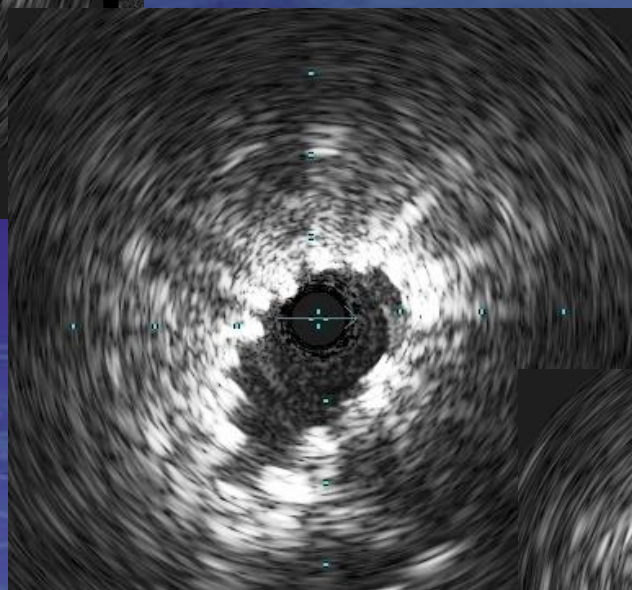
- ✓ Long time procedure in intraluminal technique (Echo guide etc.)
- ✓ Stent expansion
- ✓ Long-term prognosis



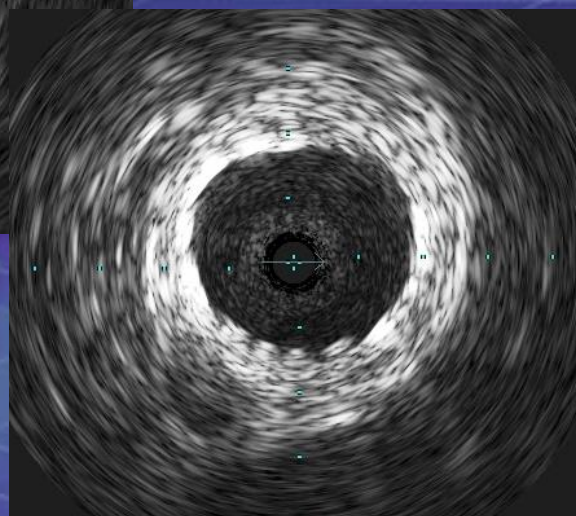
# Underexpansion of stent



Proximal



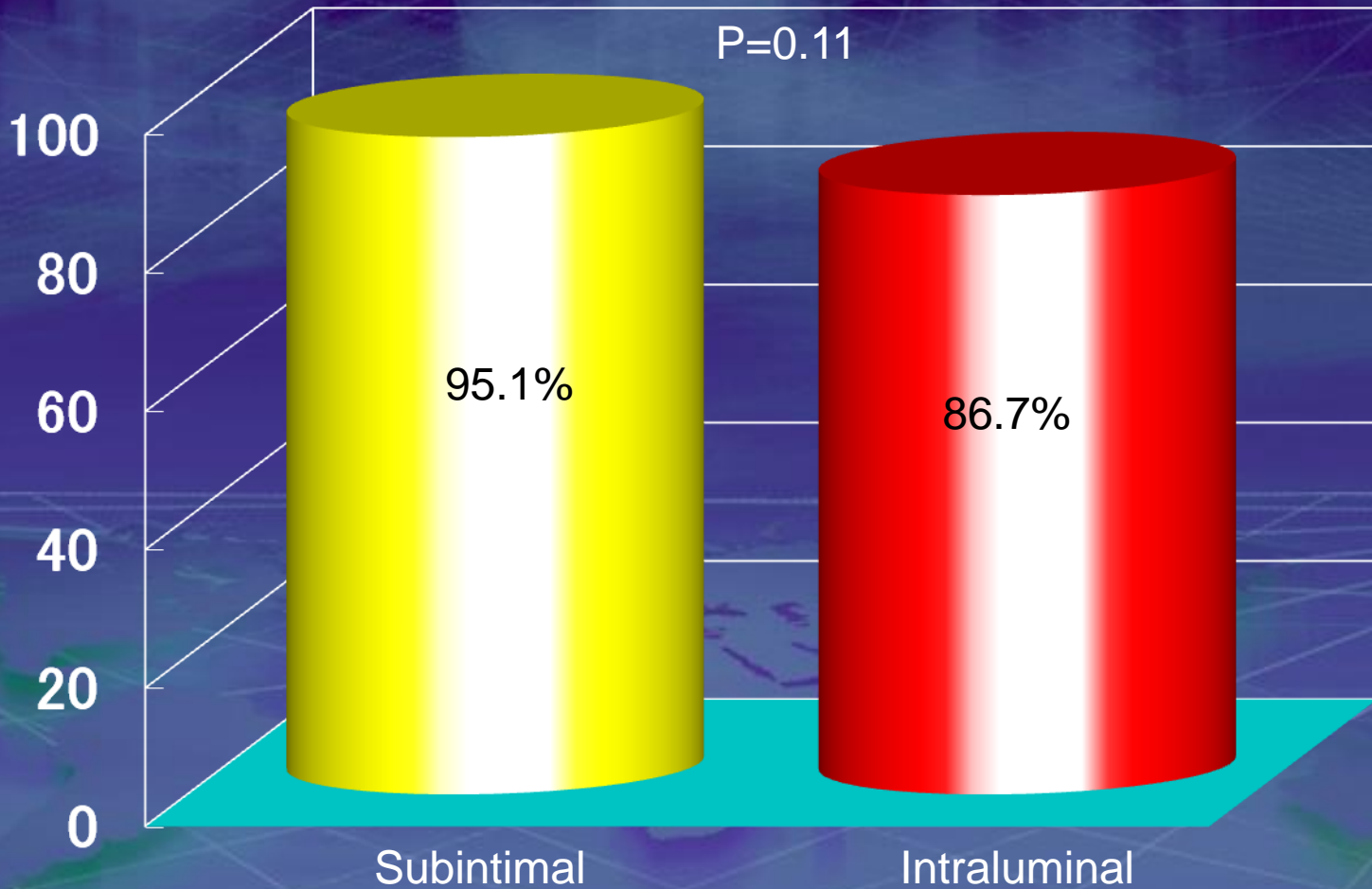
Mid



Distal

# Success rate

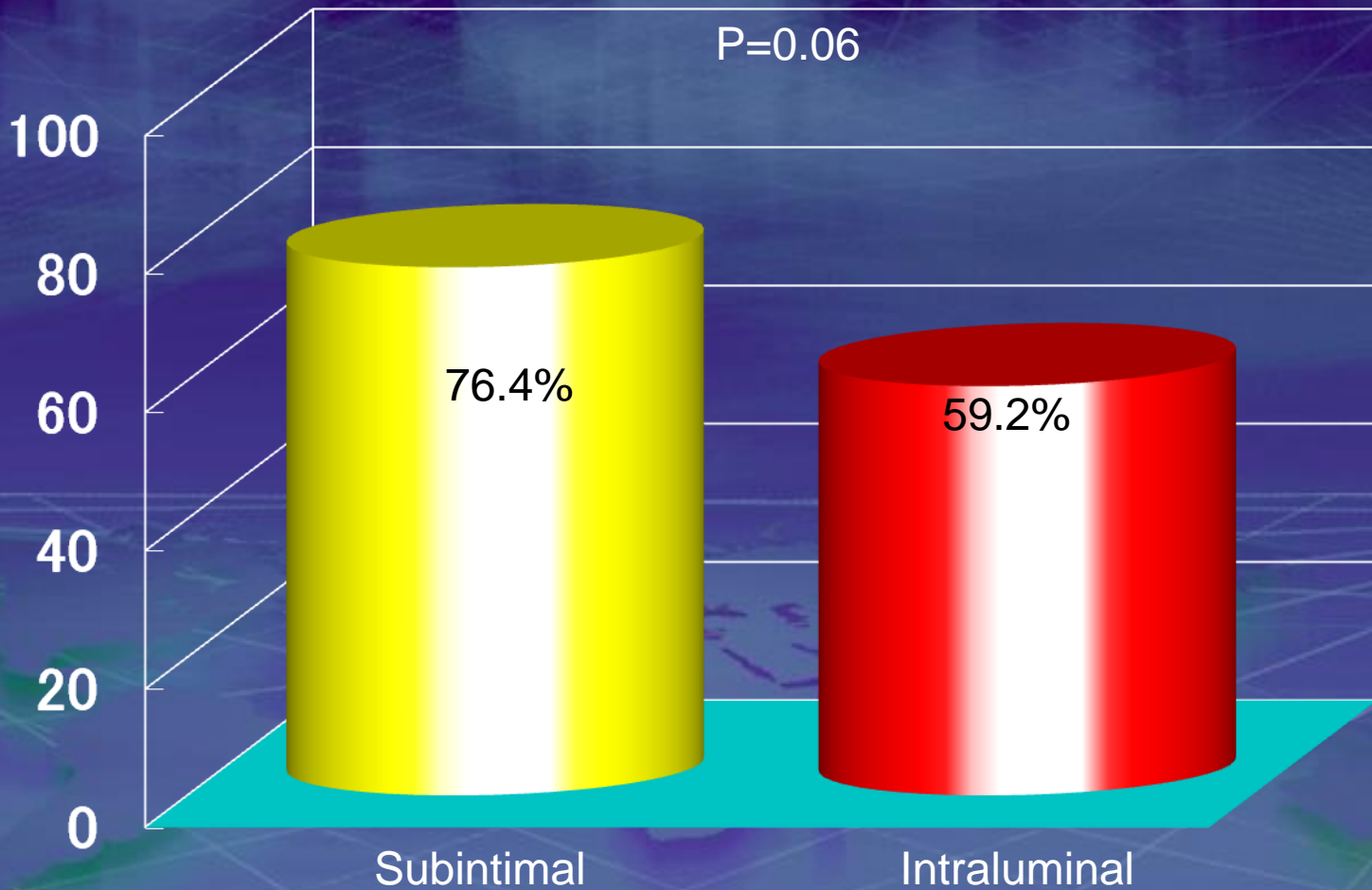
No major complication



Ko YG et al. J Endovasc 2007



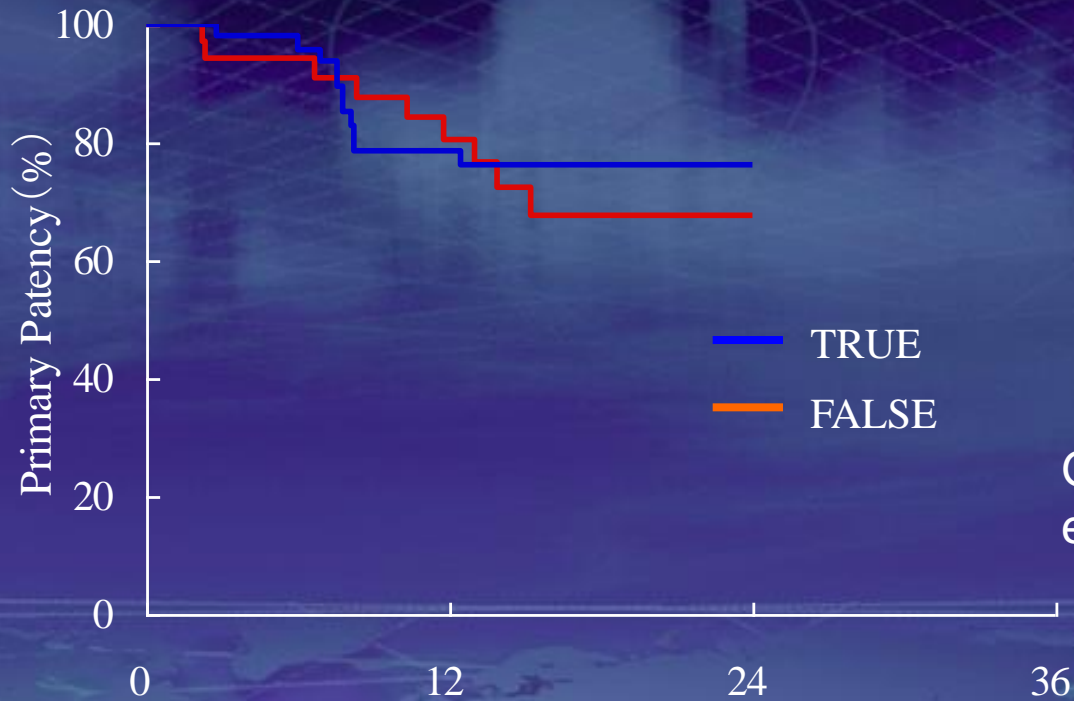
# Primary patency at 12 month



Ko YG et al. J Endovasc 2007



# Super FACT



		Months								
Months		0	3	6	9	12	15	18	21	24
at risk	—	48	47	45	37	32	26	17	11	7
	—	34	32	31	26	22	15	7	5	4
Patency,%	—	100	97.9	95.8	78.8	78.8	76.2	76.2	76.2	76.2
	—	100	94.1	94.1	87.6	80.5	72.2	67.4	67.4	67.4
SE	—	.000	.021	.029	.060	.060	.063	.063	.063	.063
	—	.000	.040	.040	.058	.072	.085	.092	.092	.092

- **No concern about the subintimal or true lumen recanalization in my strategy**
- **Some Dr. recommends true lumen recanalization in the era of DCB because drug elution would be good to the vessel wall and be able to finish without stenting**



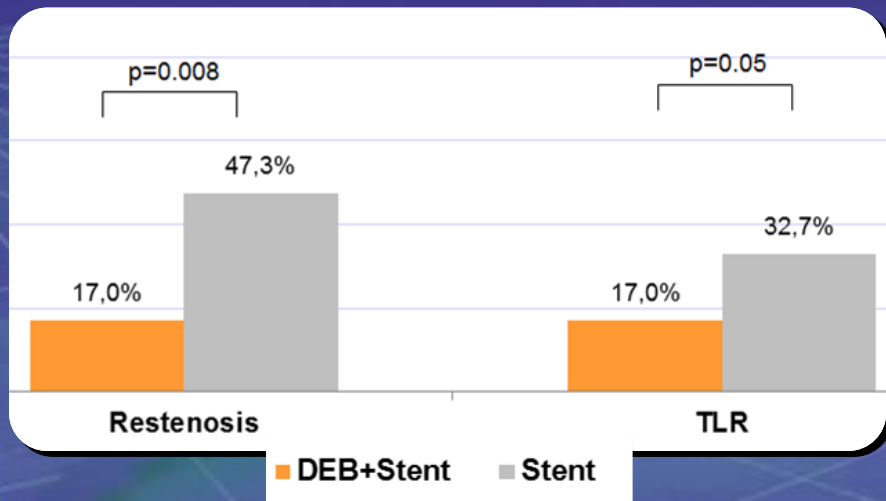
- **I can finish through subintimal recanalization with long balloon inflation without stenting or spot stenting**
- **There is no data DCB should be used for true lumen**

# DEB+Stent vs. Stent: DEBATE SFA

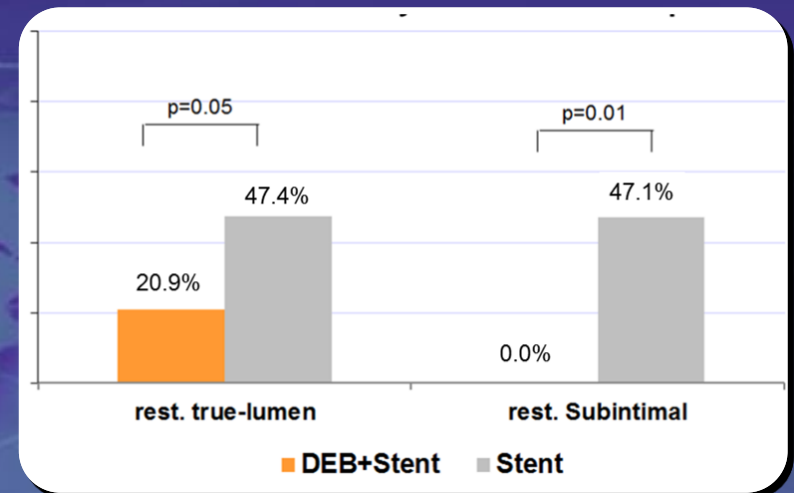
Randomized, 104 Patients (>70% CLI and Diabetics, >60% CTOs), Primary EP: 1y RR

- **DEB significantly improve Stent results**
- **Restenosis ↓↓ maintained irrespective of lesion length and recanalization technique**

## 1-Year Restenosis and TLR



## 1-Year Restenosis: subintimal vs. true lumen

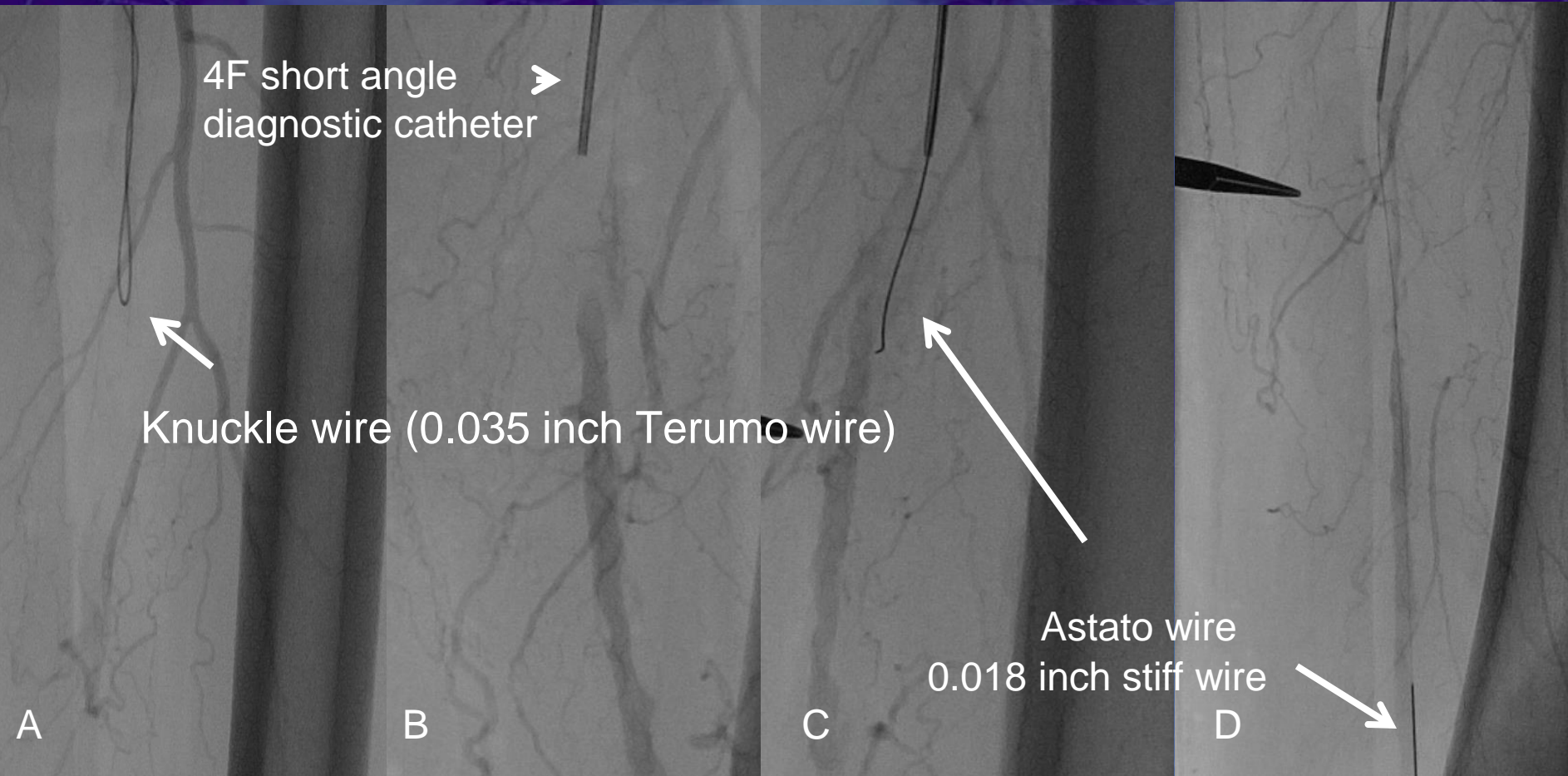


(Liistro F et al. J Am Coll Cardiol Interv 2013 – accepted)



# SFA CTO

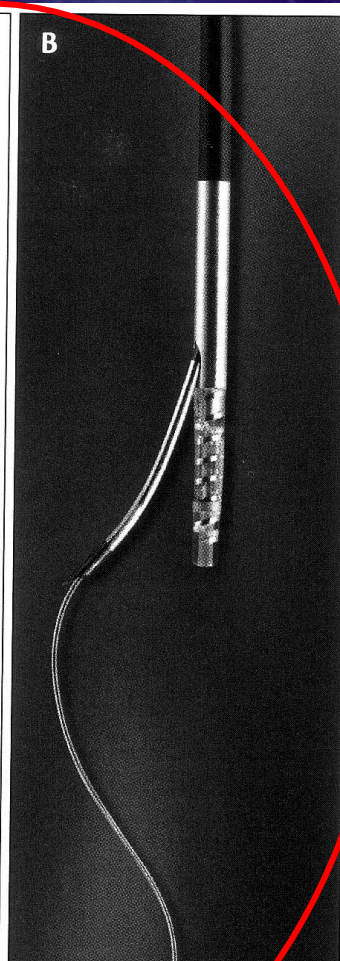
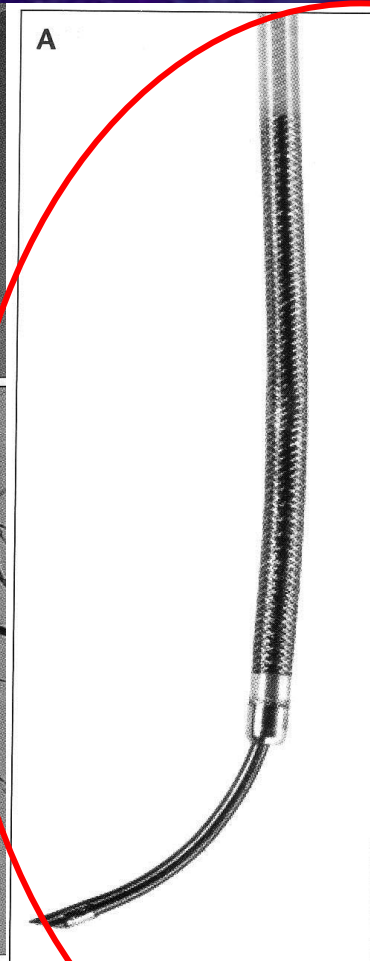
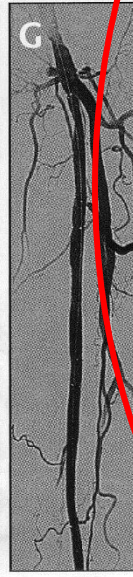
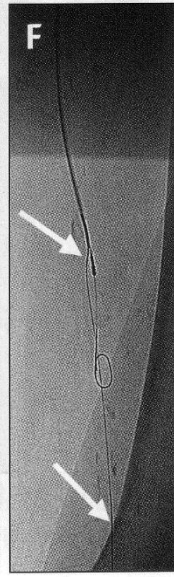
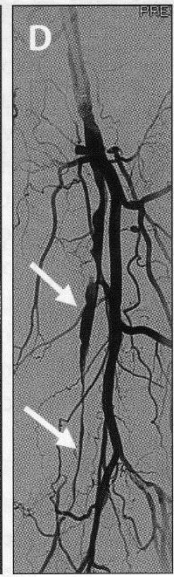
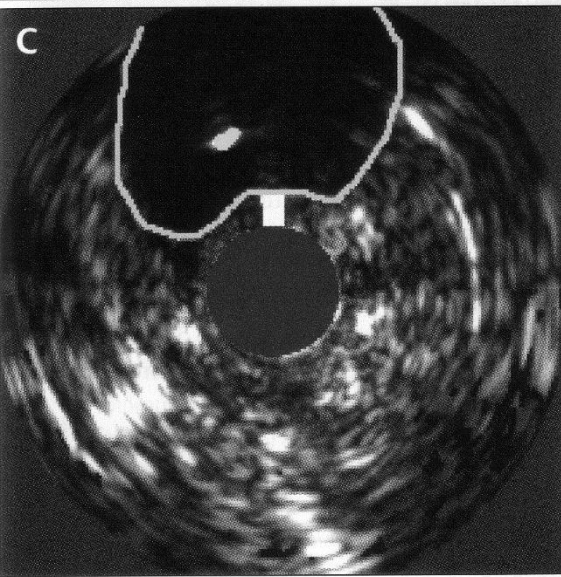
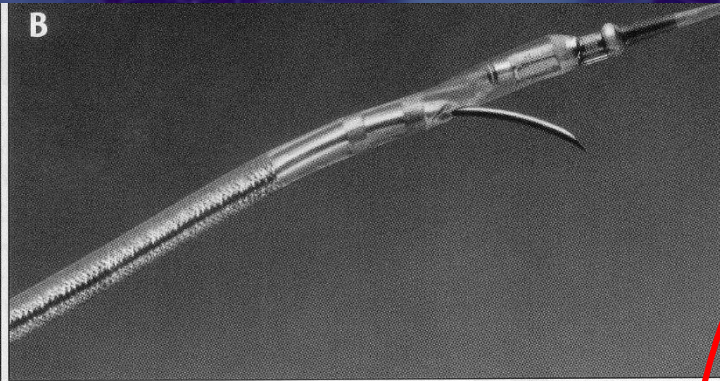
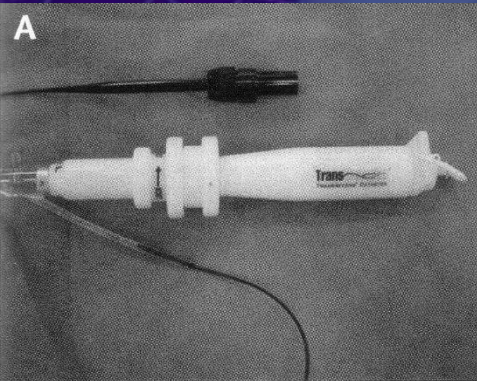
Single directional approach



**Success rate 80%**



# Re-entry device

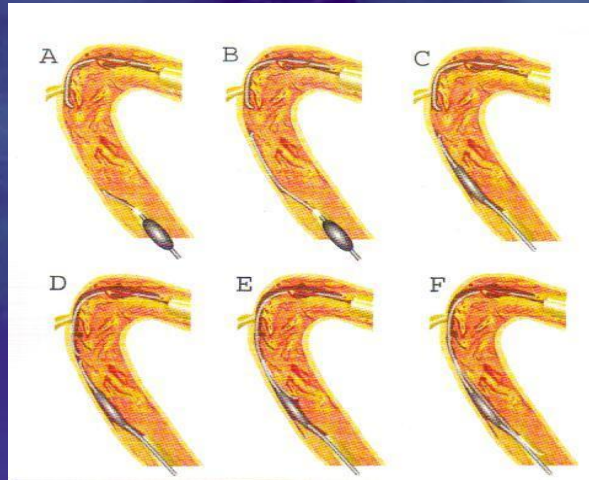


Pioneer™

Outback™



# Switch to the bilateral approach



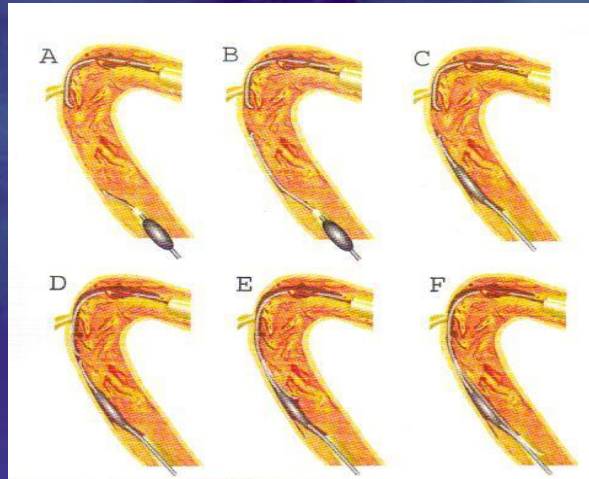
## CART technique

Courtesy of Dr. Kato

## Retrograde access

- ✓ Trans popliteal A.
- ✓ Trans tibial A.
- ✓ Trans collateral A.
- ✓ Distal SFA puncture

# Switch to the bilateral approach



## CART technique

Courtesy of Dr. Kato

## Retrograde access

- ✓ **Trans popliteal A.**
- ✓ Trans tibial A.
- ✓ Trans collateral A.
- ✓ Distal SFA puncture



# Popliteal puncture



6F sheath  
Prone position

# New popliteal puncture

Supine position



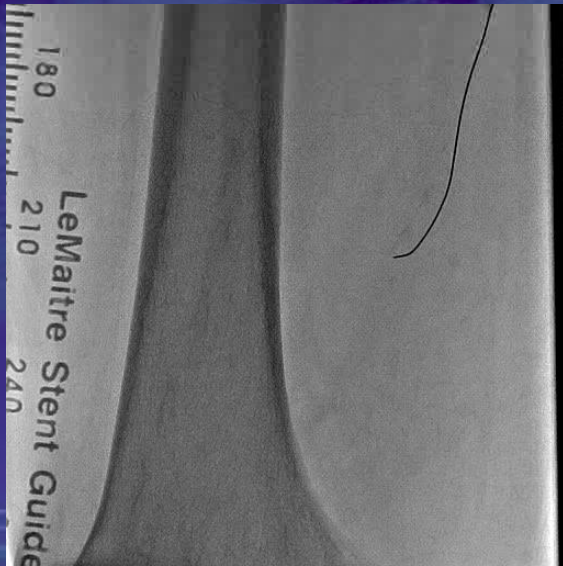
Small box







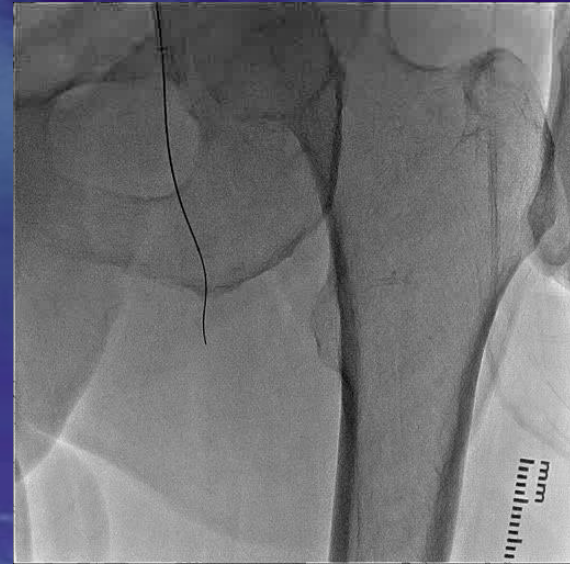
## Pattern 1



Antegrade guidewire advanced CTO, but did not pass the distal cap only.

Microcatheter  
(X-support)

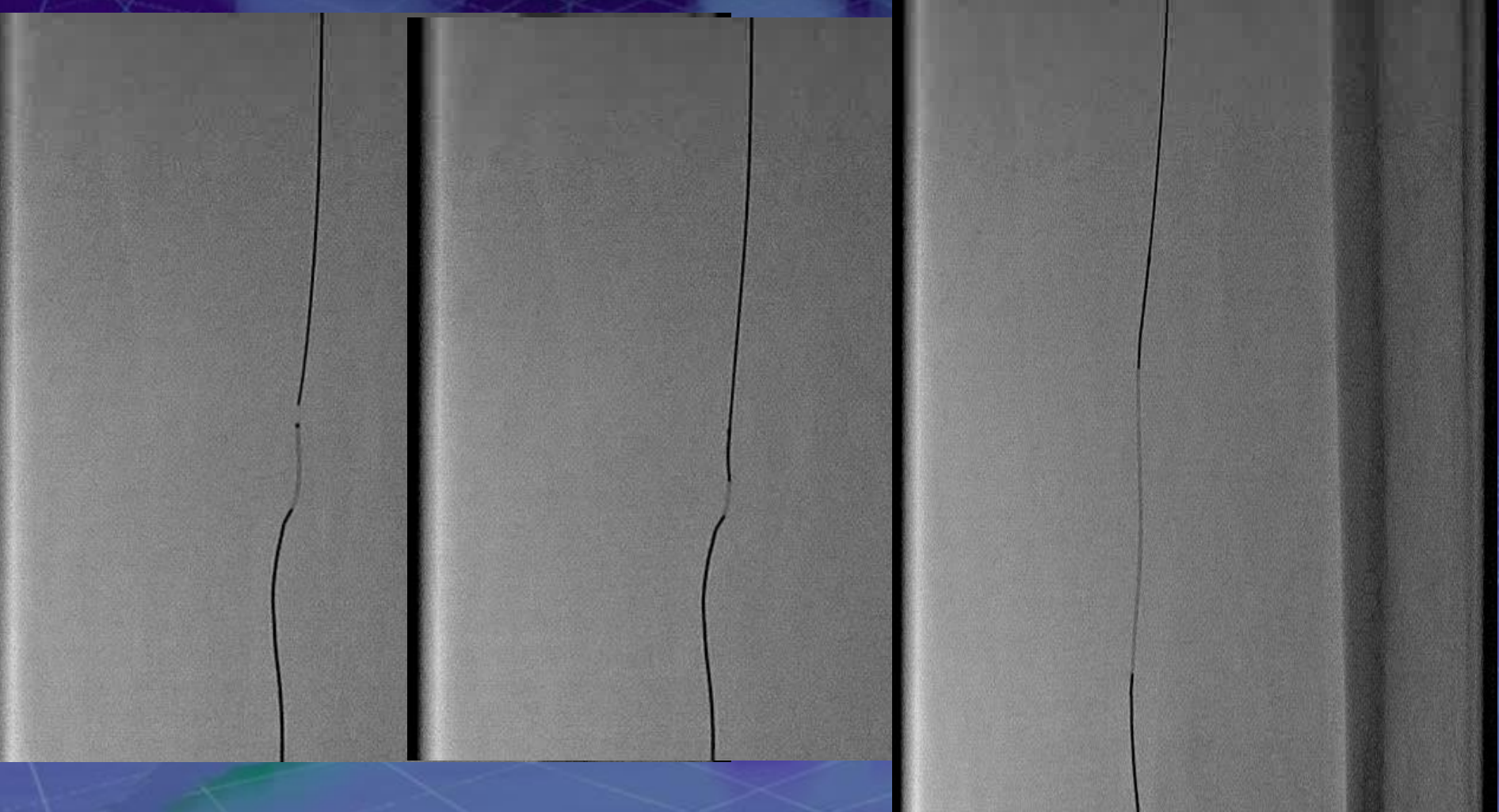
## Pattern 2



Antegrade guidewire stopped proximal - mid CTO site.

3F sheath  
(Parent plus)

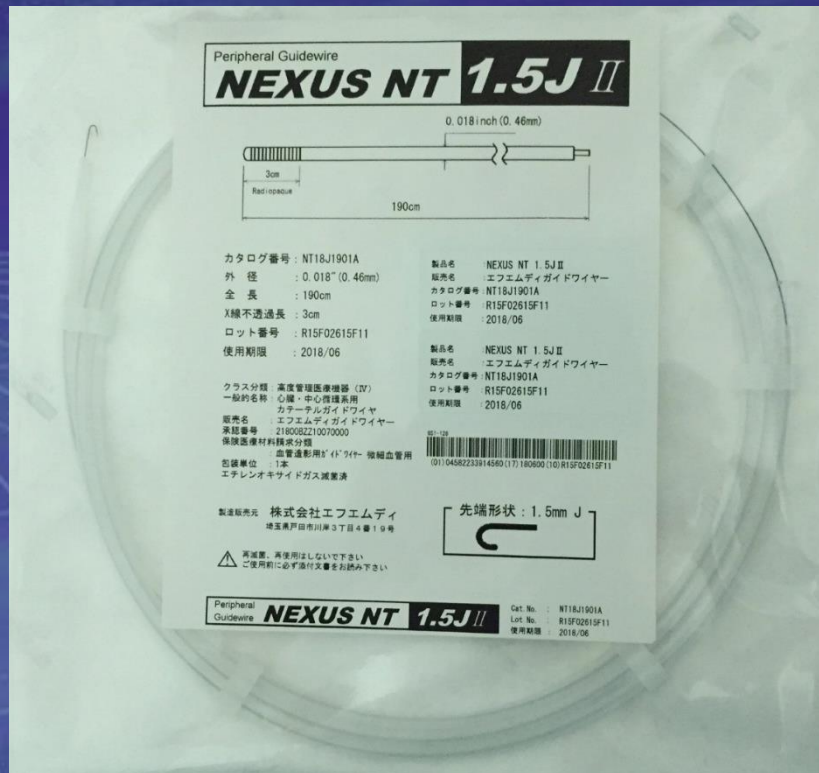
# Rendezvous technique



Antegrade wire: 0.014 stiff wire (Treasure)  
Retrograde wire: 0.014 hydrophilic wire (Cruise)



# IVUS-guided 0.018-inch J Wire Crossing in Peripheral Chronic Total Occlusions

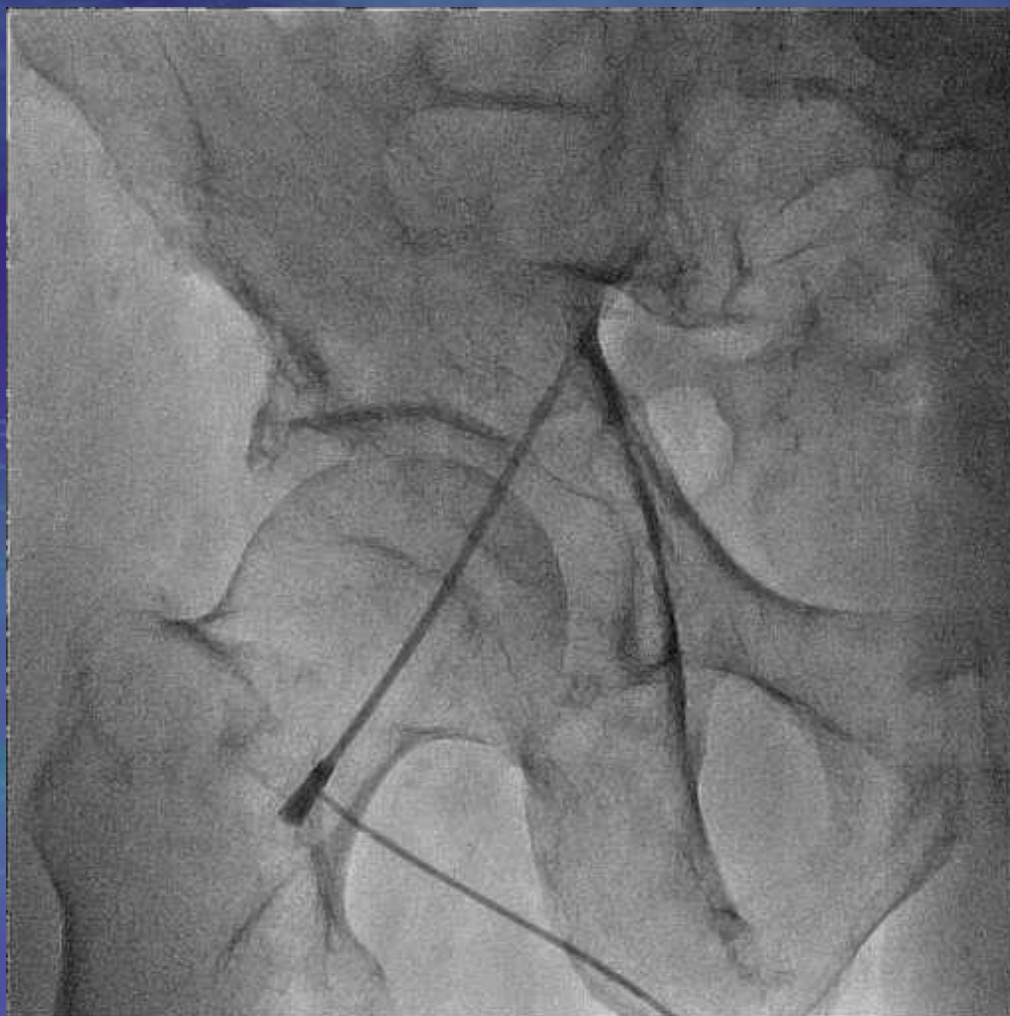


## Spec

- 190 cm
- 0.018-inch J type Coil wire
- Non-hydrophilic coating
- Nitinol core

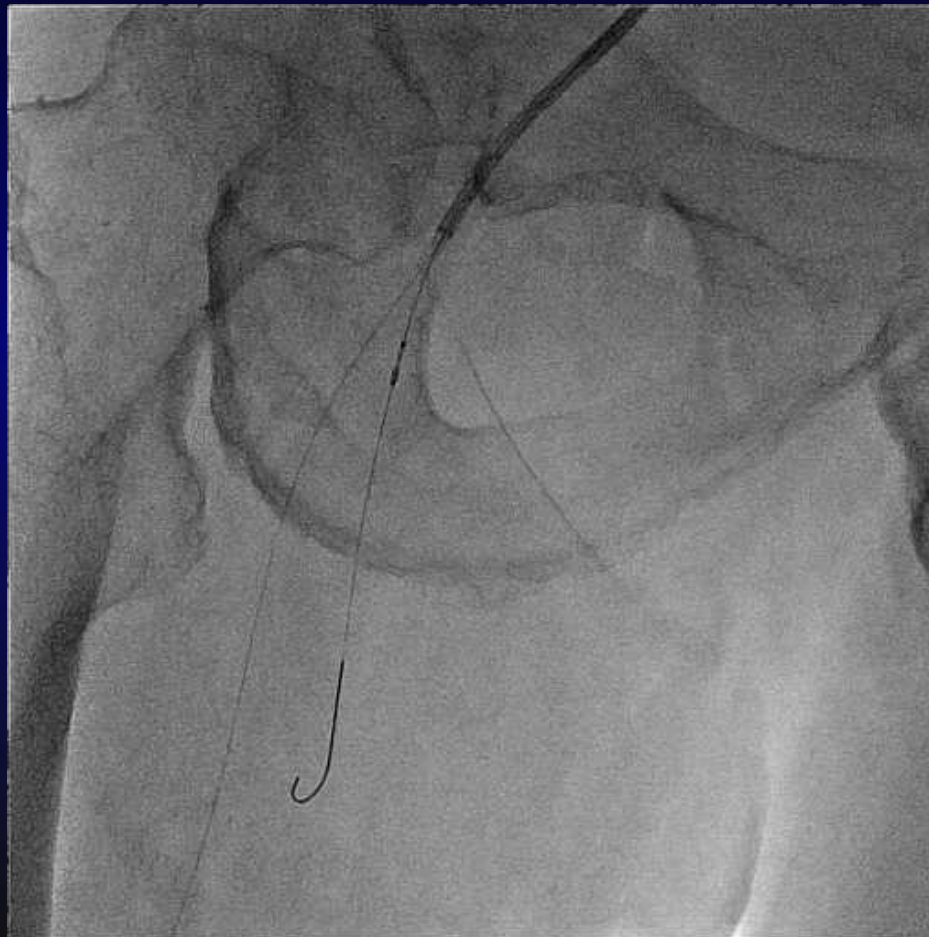


- ✓ A 73 y.o. male with the history of critical limb ischemia (Rutherford 4), HTN, DL, DM and former smoking underwent EVT for the right SFA.



# IVUS guided 0.018-1.5 j wire crossing

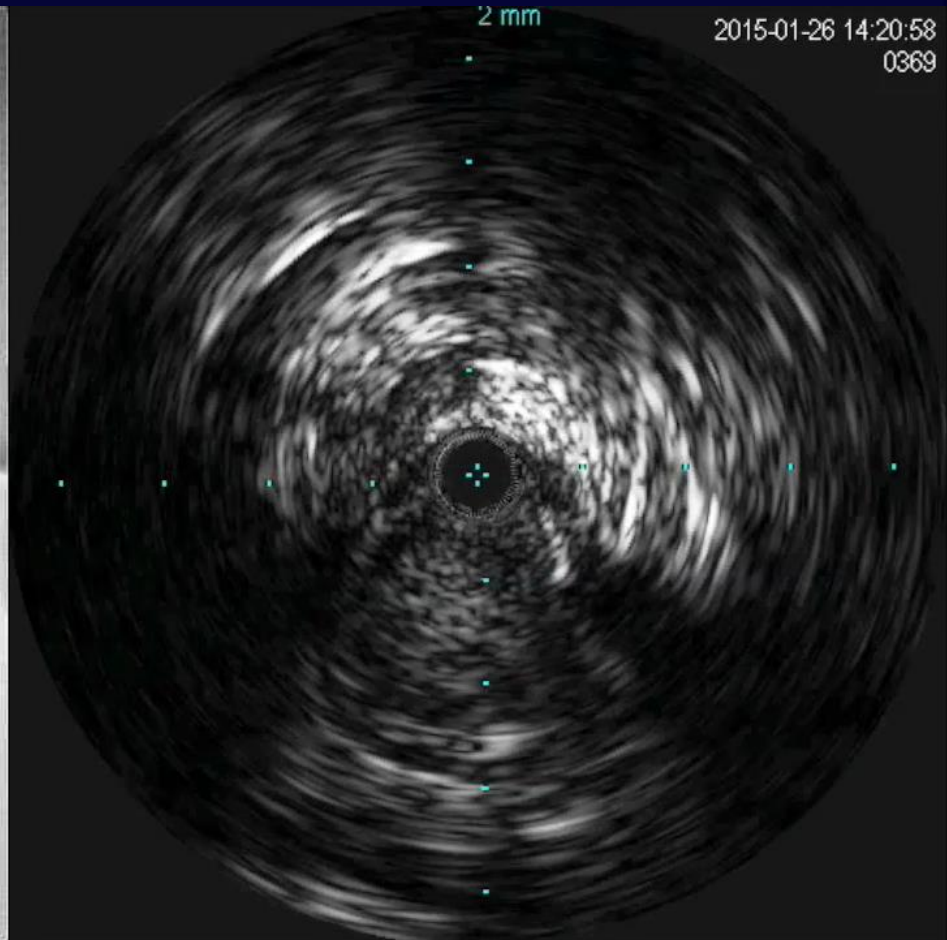
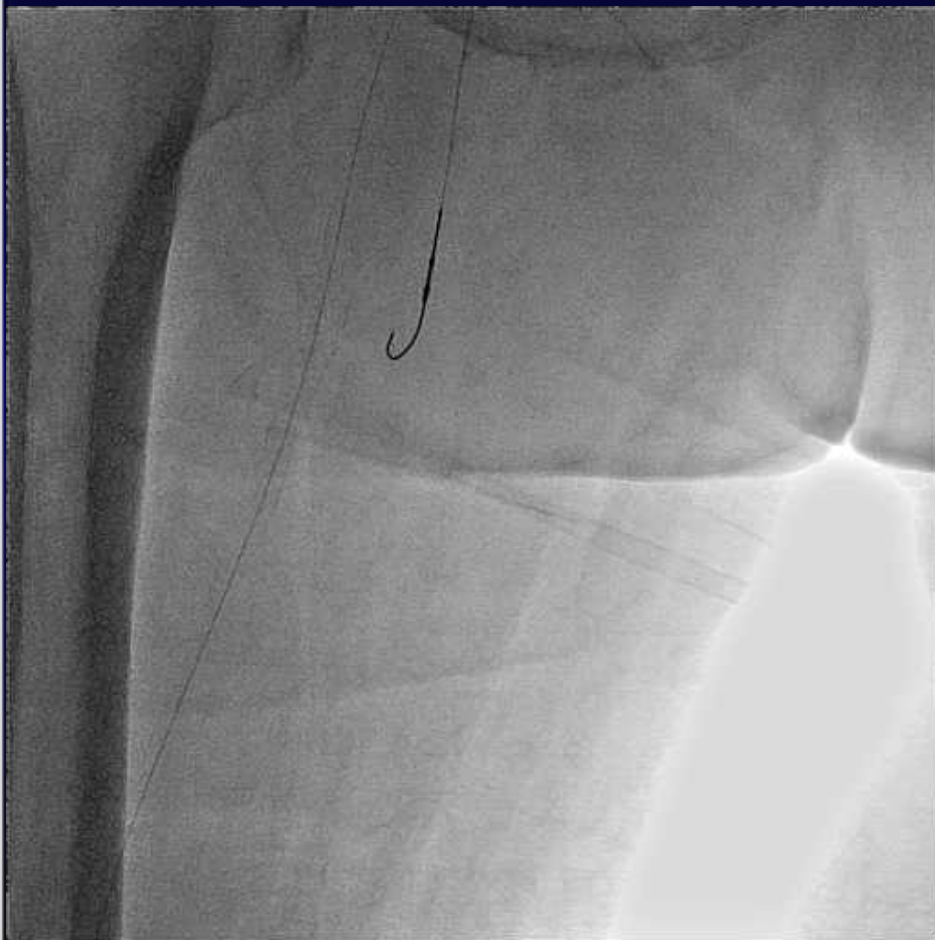
- ✓ Lumen crossing with combination of 0.018-1.5J wire and Volcano-IVUS
  - 6Fr 22.0 cm Parent plus™ via the ipsilateral CFA.





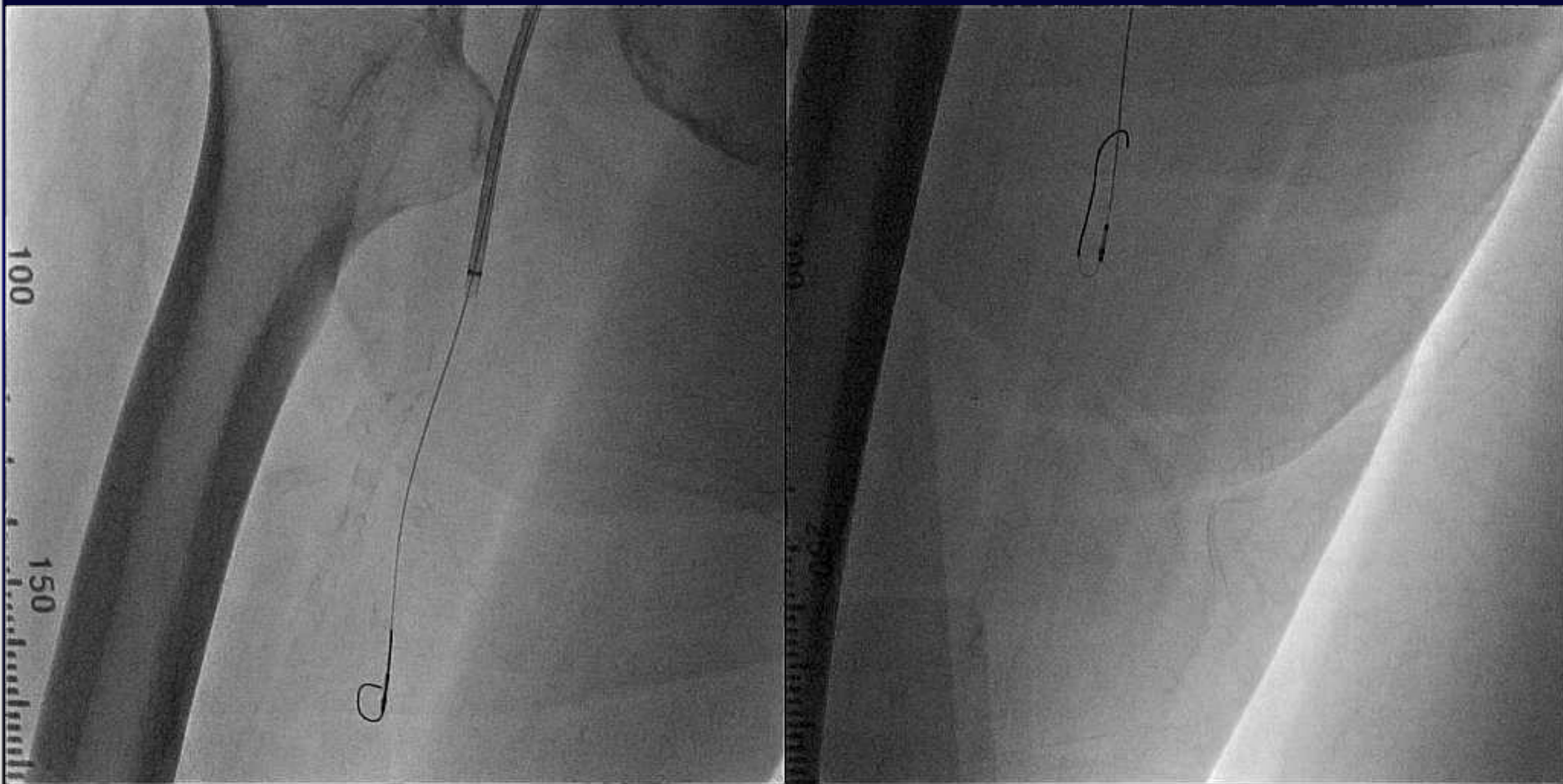
# IVUS guided 0.018-1.5 j wire crossing

- ✓ Lumen crossing with combination of 0.018-1.5J wire and Volcano IVUS
  - 6Fr 22.0 cm Parent plus™ via the ipsilateral CFA.



# IVUS guided 0.018-1.5 j wire crossing

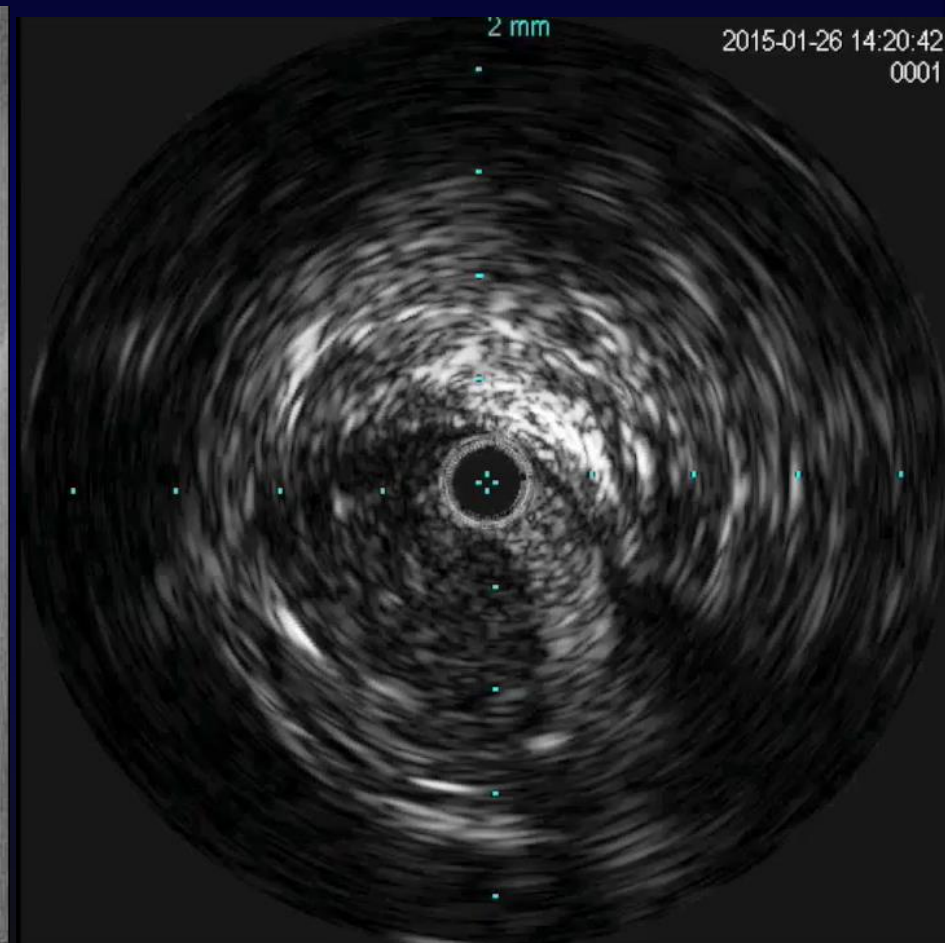
- ✓ Lumen crossing with combination of 0.018-1.5J wire and IVUS
  - 6Fr 22.0 cm Parent plus™ via the ipsilateral CFA.
  - Basically subintimal tracking.





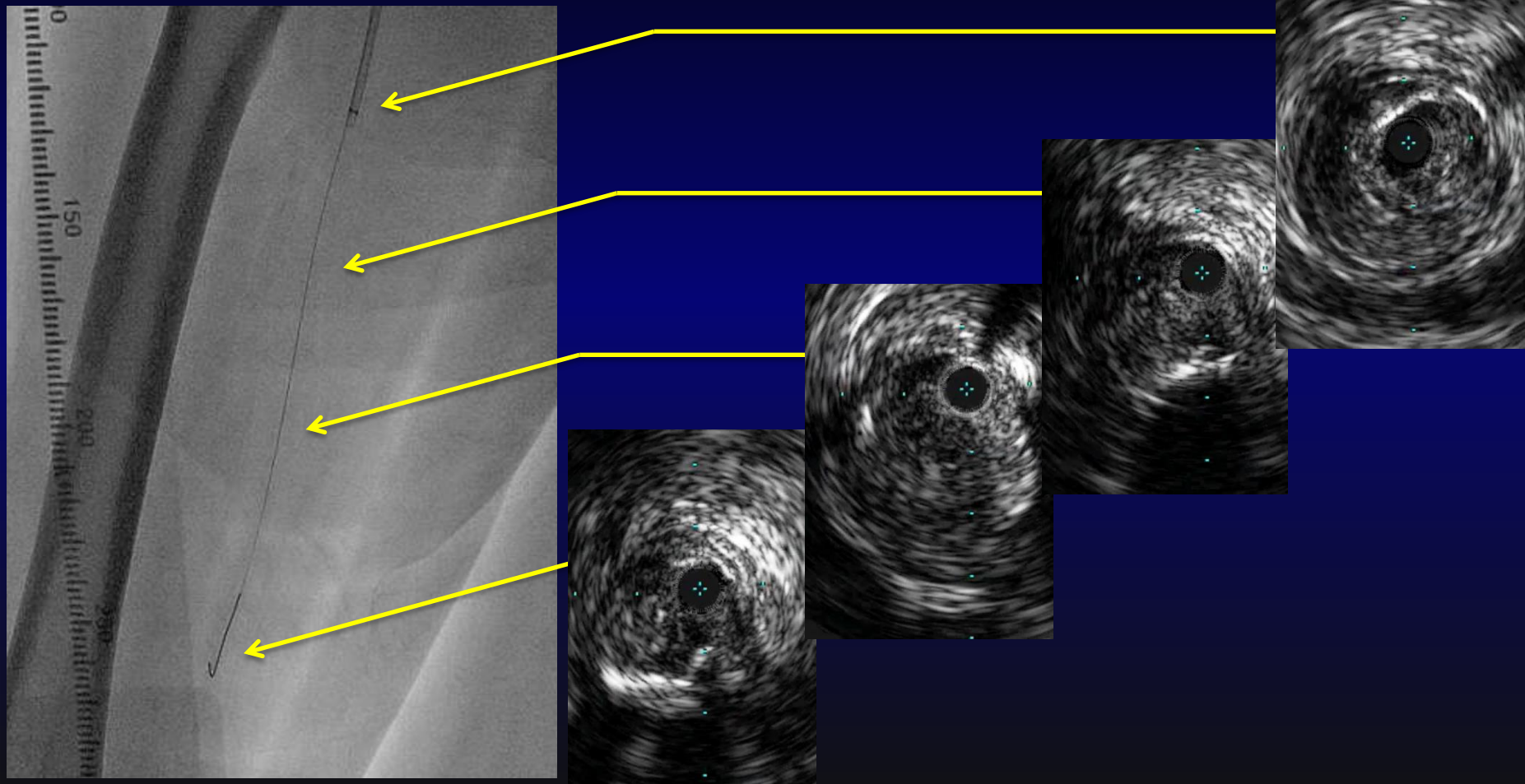
# IVUS guided 0.018-1.5 j wire crossing

- ✓ At the distal end of CTO, Chevalier tapered 30g<sup>TM</sup> could pass the occlusion antegradely. After implantation of bare metal self expand stents, successful procedure were achieved without any complications.



# Advantage of IVUS-guided 0.018-1.5J ①

- ✓ Easy to understand how to do it and what I am doing now.
  - The wire is passing through intra-plaque or subintimal lumen.
  - What wire should be chosen in the distal end of CTO.





# Advantage of IVUS-guided 0.018-1.5J ②

- ✓ Appropriate penetration force, compared with 0.035-inch wire.
  - Not strong enough to perforate an external elastic lamina.
  - Easy to switch 0.018- or 0.014-inch stiff wires, if 0.018-1.5J stops.



# Procedural Results

	22 CTO lesions
Procedural success, n (%)	22 (100.0)
Operator, n (%)	
Preceptor, certified from CVIT	2 (9.1)
Certified physicians	17 (77.3)
Non-certified physicians	3 (13.6)
Numbers of wires per a procedure, n (%)	
1 or 2 wires	4 (18.2)
3 wires	6 (27.3)
4 wires	6 (27.3)
Over 5 wires	6 (27.3)
<b>Bi-directional approach, n (%)</b>	<b>11 (50.0%)</b>
Mean procedure time, (min)	119.5 ± 47.0
Mean volume of contrast agent, (ml)	90.4 ± 39.4
<b>Periprocedural complications, n (%)</b>	
Vessel perforation	0 (0.0)
Artery-vein fistula	0 (0.0)
Distal embolization	0 (0.0)



# Conclusion

Many tips & tricks in SFA CTO recanalization

- No definite procedure
- Higher success rate in bilateral approach
- IVUS guided 0.018-1.5 J technique is reliable procedure with less complication
- Improvement of long term outcome  
(Debulking, DEB, DES etc.)



