

# Non-Atherectomy Strategies for Vessel Preparation in Complex FP Disease

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# Disclosure

Speaker name: Hiroshi Ando

I have the following potential conflicts of interest to report:

- Consulting
- Employment in industry
- Stockholder of a healthcare company
- Owner of a healthcare company
- Other(s)
  
- I do not have any potential conflict of interest



# Japan's current status regarding atherectomy devices



- Rotational Atherectomy  
Rotablator



- Directional Atherectomy  
TurboHawk / HawkOne



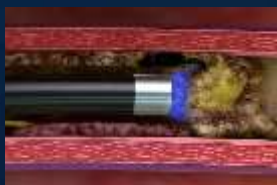
- Orbital Atherectomy  
Diamondback



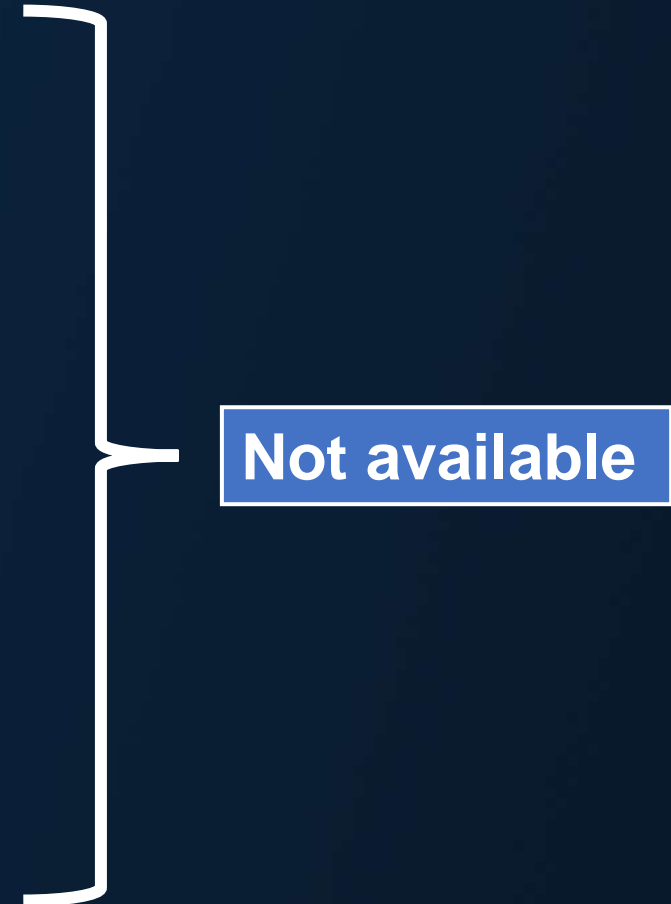
- Rotational and Aspiration Atherectomy  
JETSTREAM



- Rotational Atherectomy  
Rotarex



- **Excimer Laser**



**In-stent Re-Restenosis** of FP lesions only



# What is the Role of Atherectomy ?

Difficult or impossible to solve with traditional methods !

Calcification

Thrombus /  
Embolism

ISR / ISO

Non-stenting  
zone

Device delivery  
failure



# To fight against calcification

## ➤ Lesion modification

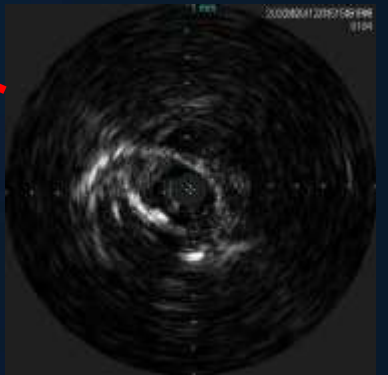
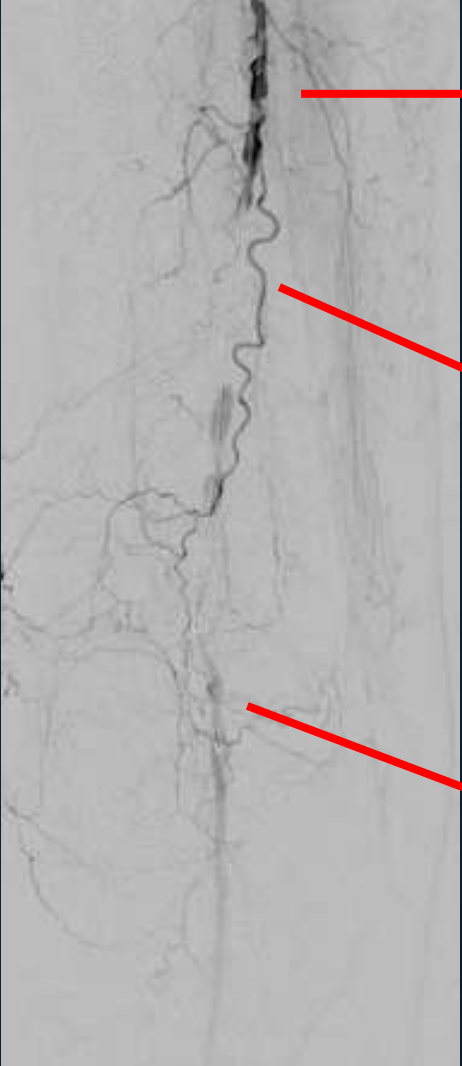
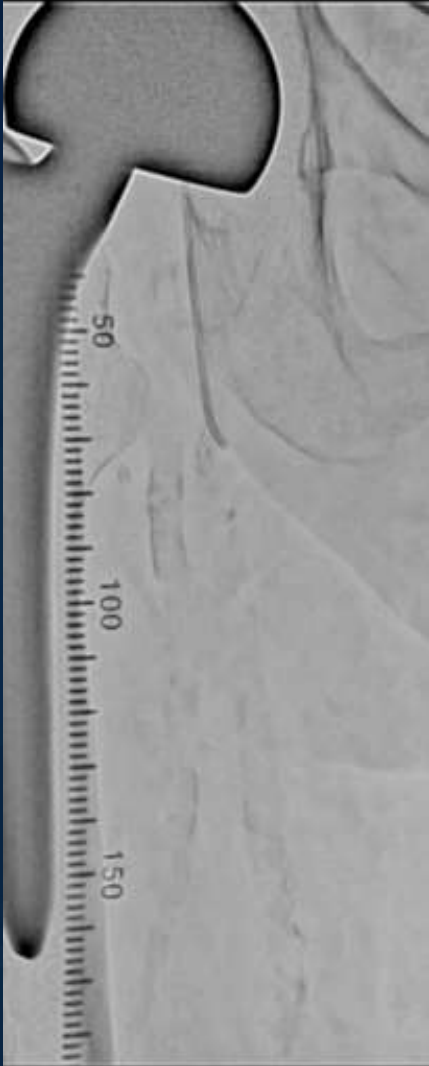
- Aggressive vessel preparation using special balloon
  - Super NC balloon: Jade(OrbusNeich)
  - Super high pressure balloon: Shiden HP(Kaneka)
  - Scoring balloon
- CANNON Technique by Dr. Hozawa
- CROSSBOW / RAMBO Technique by Dr. Urasawa
- BRAVO Technique by Dr. Yamamoto
- Fracking Technique by Dr. Haraguchi
- CROSSVAC Technique by Dr. Takimura

## ➤ Crossing the device

- Needle Cracking Technique by Dr. Ando
- BADFORM Technique by Dr. Ando

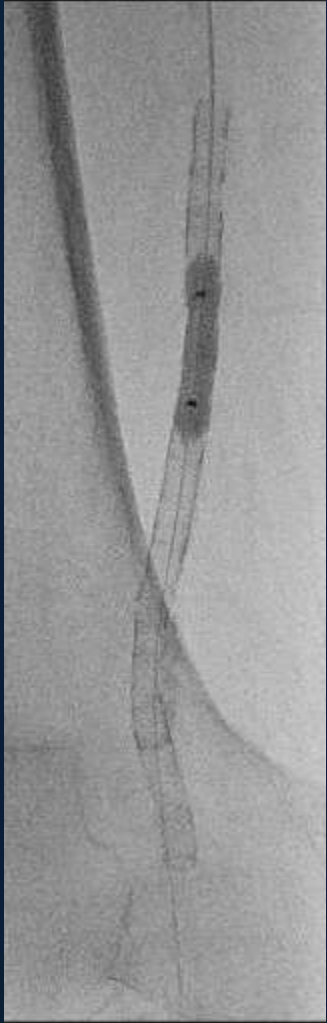
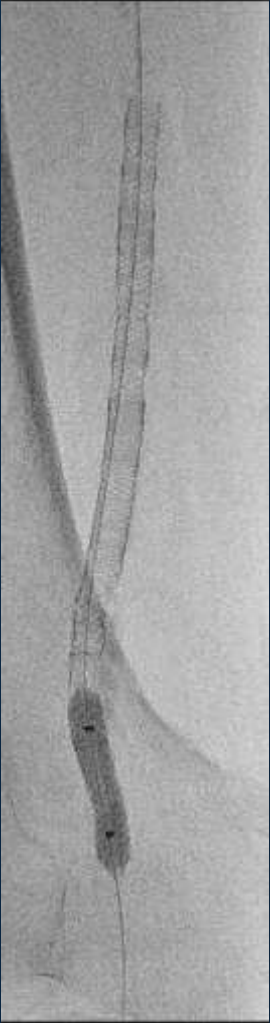
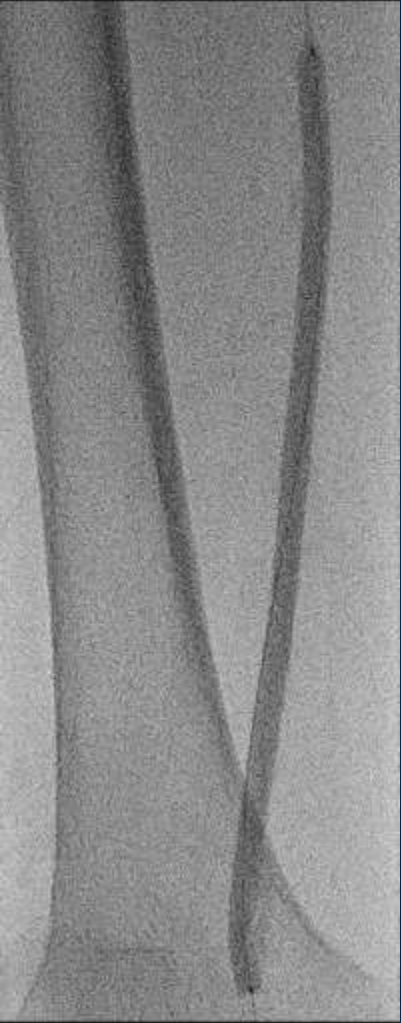


# Aggressive vessel preparation





# Aggressive vessel preparation



**Shiden HP 6×150mm, 30 atm**

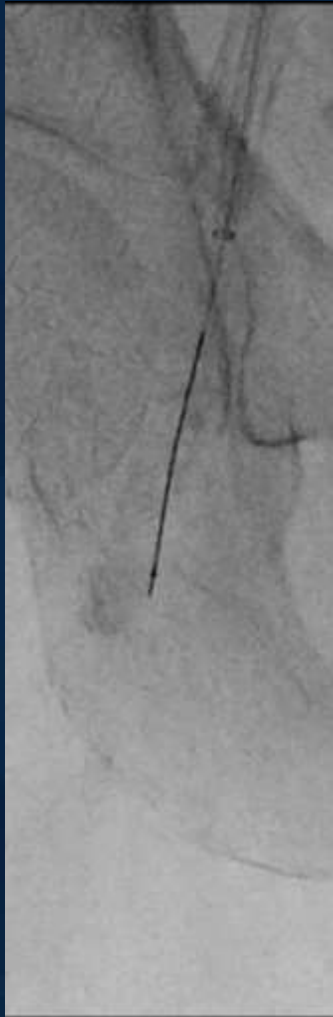
**SUPERA 5.5×150mm**  
**Shiden HP 7×20mm, 20 atm, 9 times**



# CANNON Technique

Non-stenting zone

Calcification zone



Jade 5.0x40mm

35 Shiden HP  
6.0x40mm

KBT 4mm x 2





# CANNON Technique

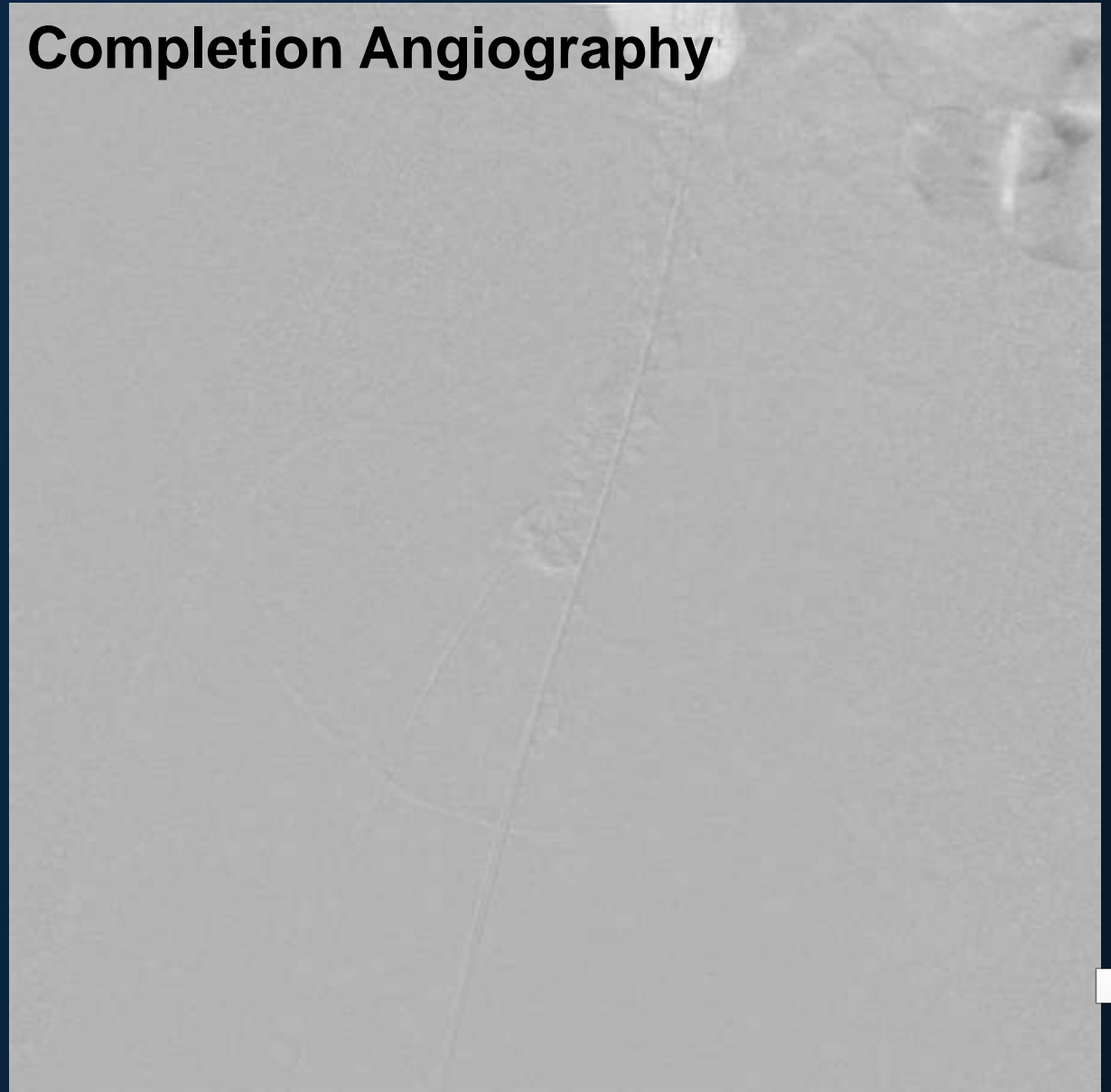
Non-stenting  
zone

Calcification



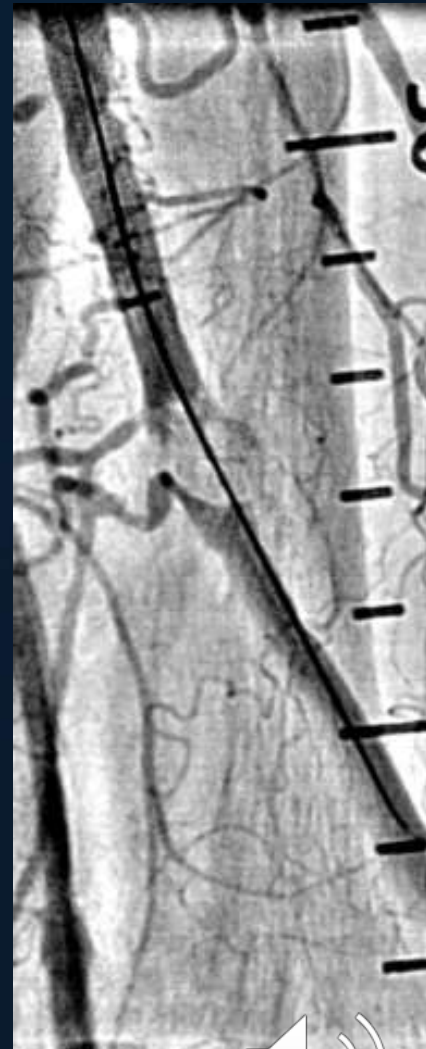
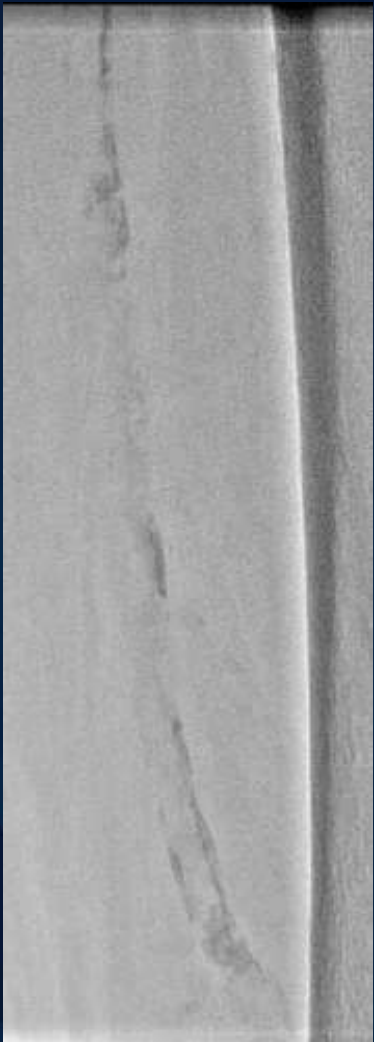
**INPACT Admiral 6.0×80mm**

## Completion Angiography



# CANNON Technique

Calcification



Jupiter max

Tail of wire

Corsair Armet + Vassallo G40



# CANNON Technique

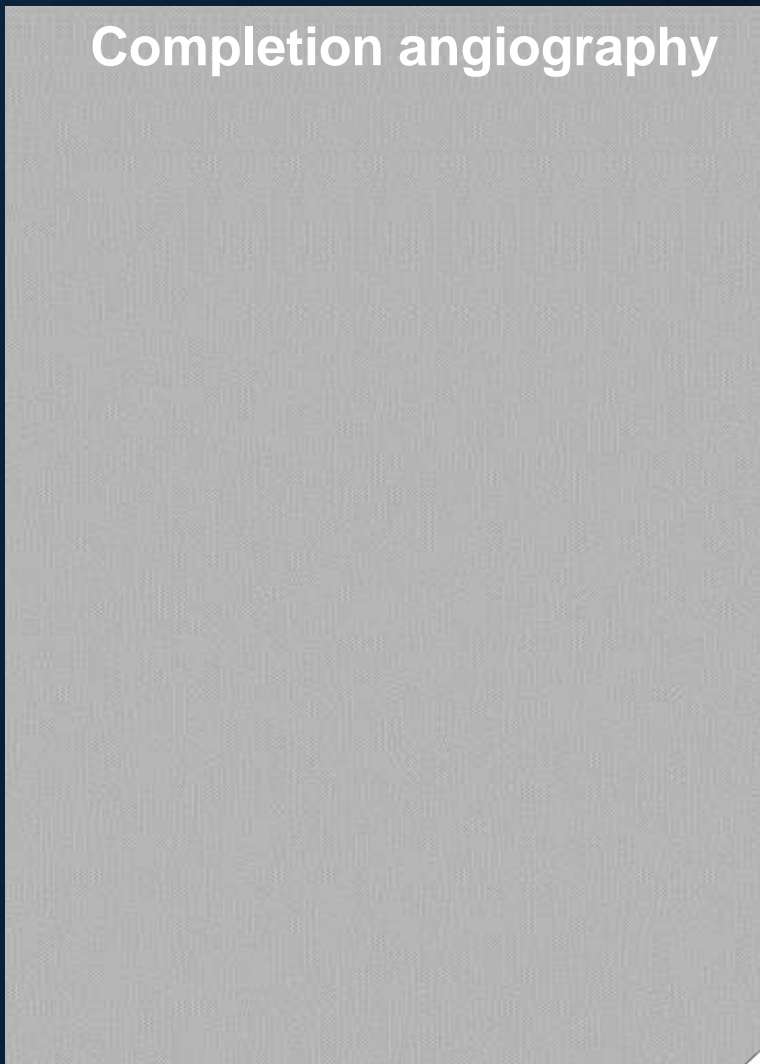
Calcification



Post NSE



Completion angiography



NSE 6.0x40mm

INPACT Admiral 6.0x60mm





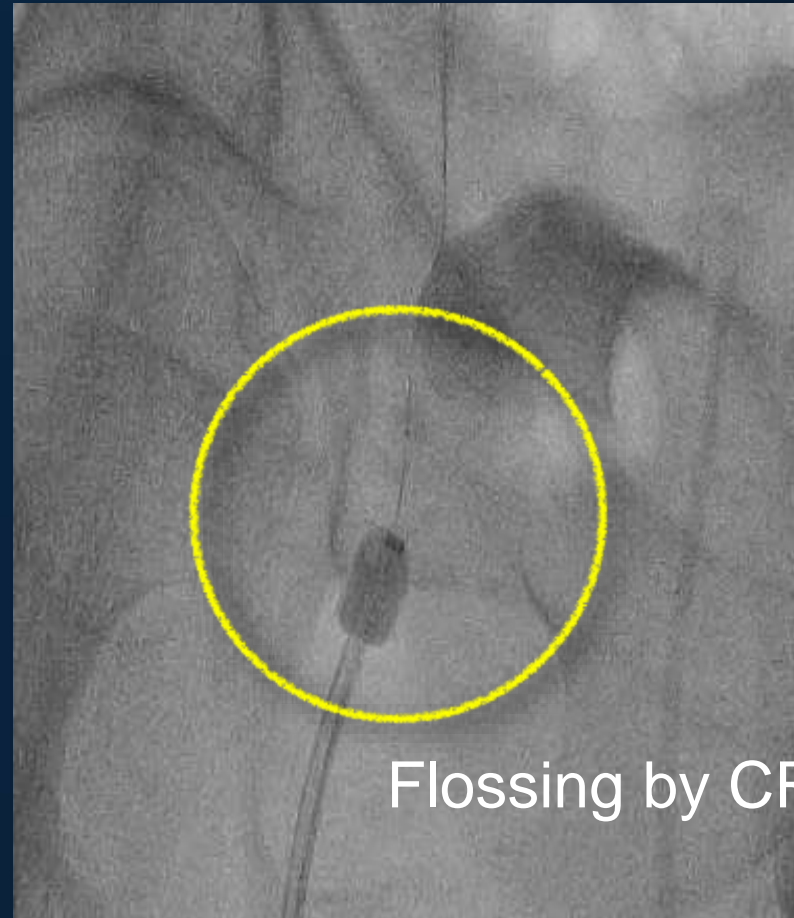
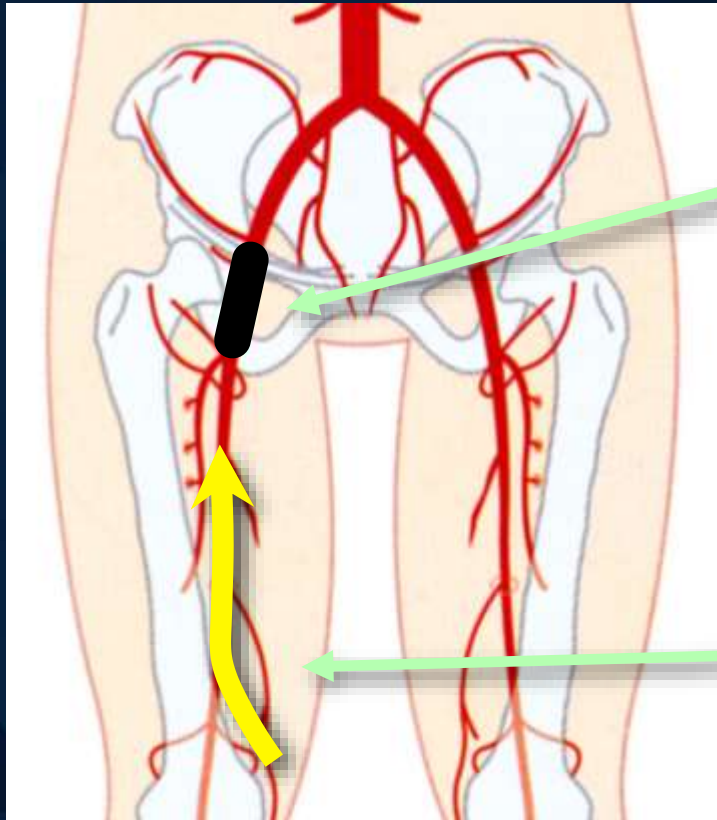


# BRAVO Technique

Non-stenting zone

Calcification zone

**Bioptome assisted by RAMBO Via OPTIMO**



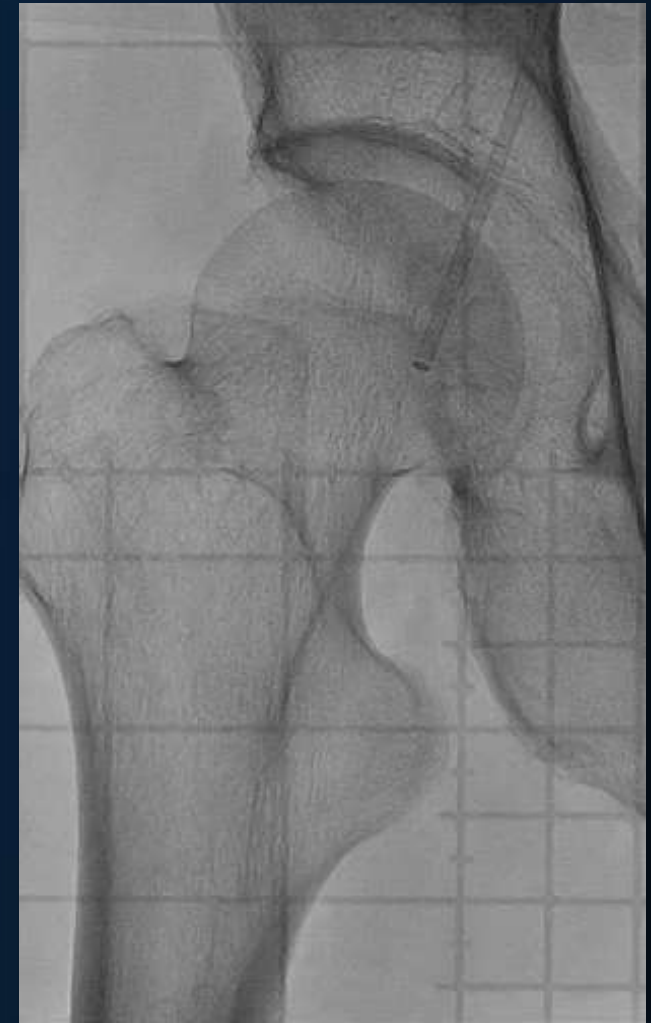
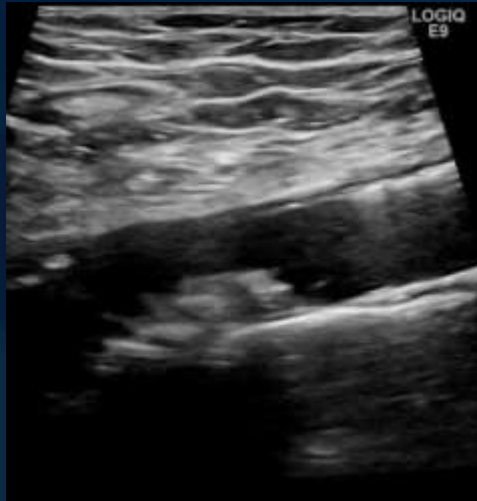
Courtesy of Dr. Yoshito Yamamoto



# BRAVO Technique


Non-stenting zone

Calcification zone



Courtesy of Dr. Yoshito Yamamoto

TCTAP 2021 VIRTUAL

Completion Angiography 



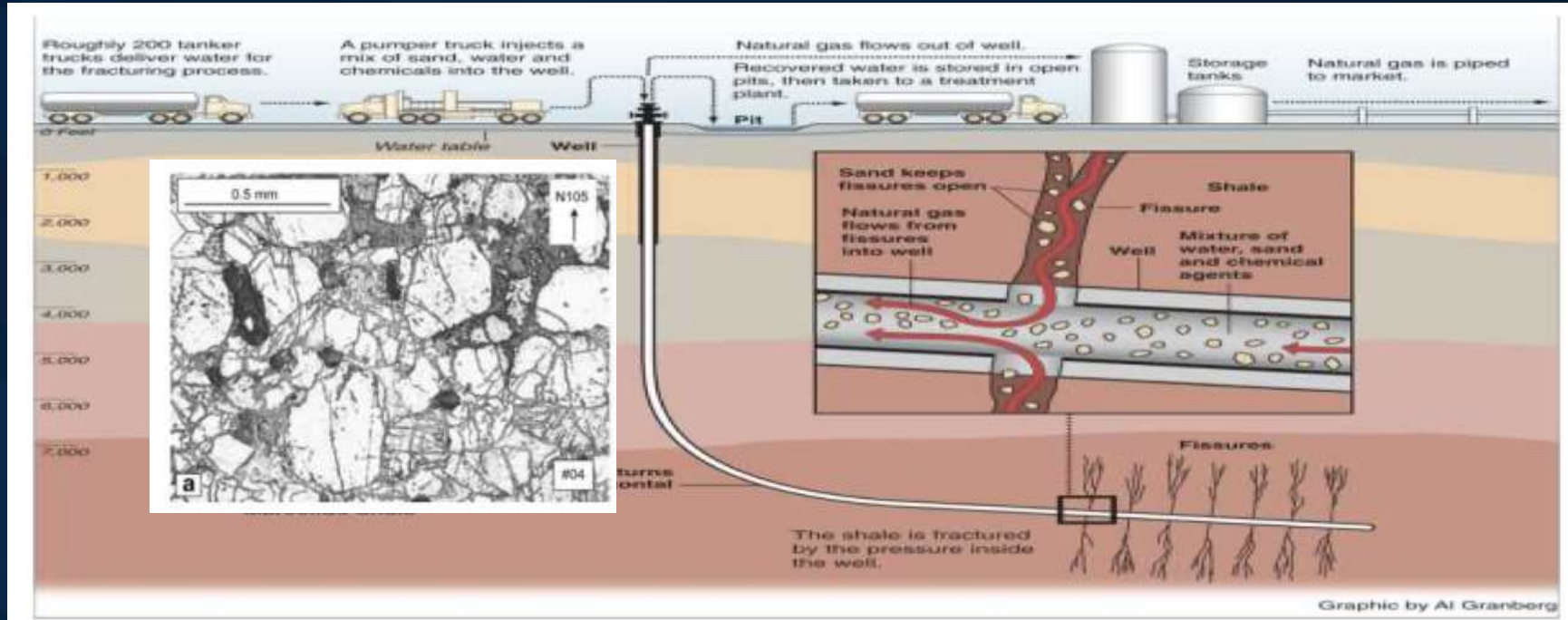


# Fracking Technique

Non-stenting zone

Calcification zone

Shale gas extraction by Hydraulic fracturing: “Fracking”



- Fracking involves the injection of more than a million gallons of water, sand and chemicals at high pressure down and across into horizontally drilled wells as far as 10,000 feet below the surface. The pressurized mixture causes the shale layer to crack so that natural gas from the shale can flow up the well.

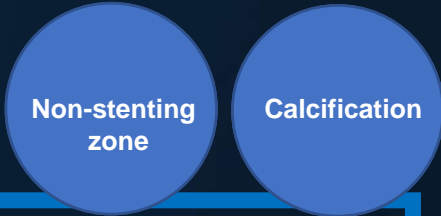


Non-stenting zone

Calcification zone



# Fracking Technique



◆ MLA: Fracking 23.24mm<sup>2</sup> (vs BA 12.20mm<sup>2</sup>)

SFA stent for calcification 14.1mm<sup>2</sup> vs non-calcification 17.8mm<sup>2</sup>

◆ Acute Gain: Fracking 18.52mm<sup>2</sup> (vs BA 7.76mm<sup>2</sup>)

POBA + JETSTREAM 4.8 - 8.1mm<sup>2</sup>

POBA + Lithoplasty 3.0mm<sup>2</sup>

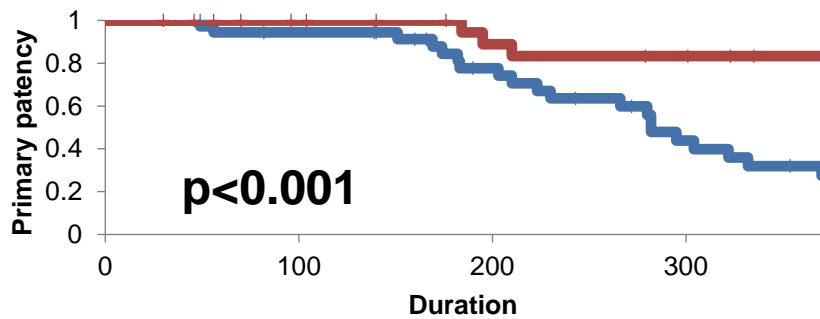
*Broadmann, CCI 2018;1-8*

*Maehara, Eurointervention 2015;11:96-103*

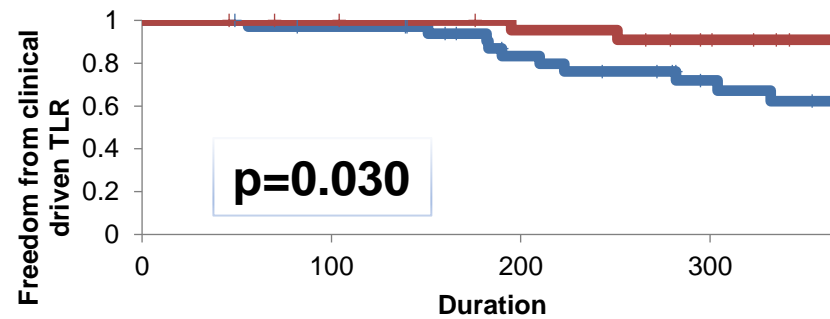
*Fujihara, JEVT 2019*

*T. Haraguchi presentation @LINC2020*

Fracking vs Balloon angioplasty



Fracking vs Standard angioplasty



No procedure related complication like distal embolism (N=28)

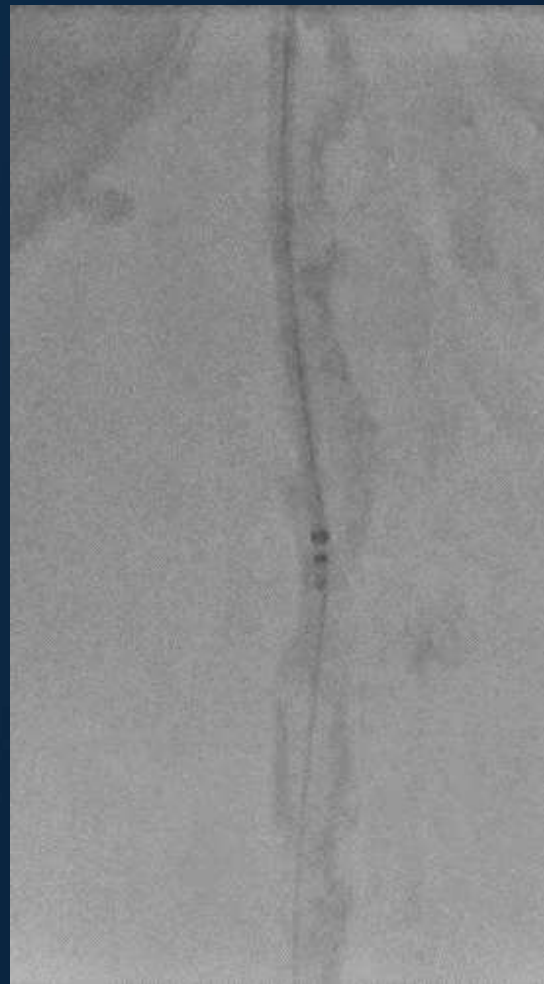




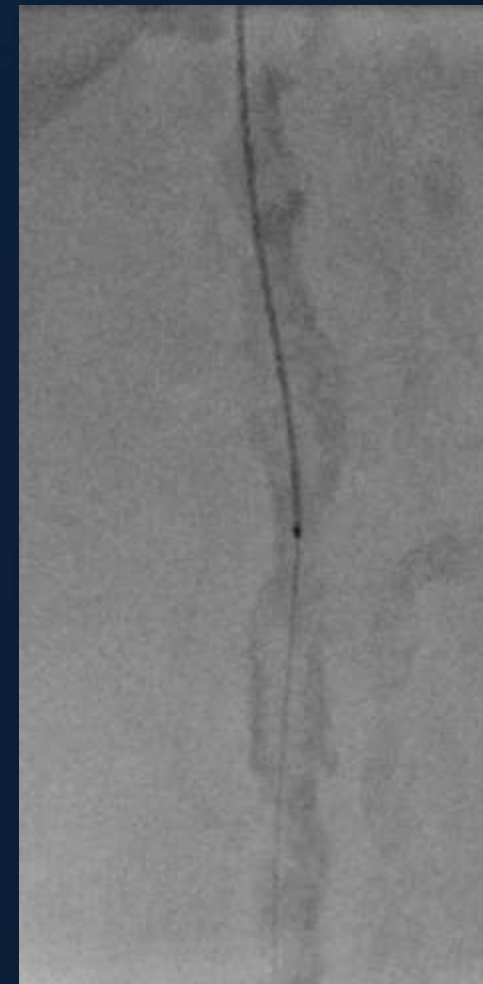
# Needle Cracking Technique

Device delivery failure

Calcification



**CROSSER**



**Tornus PV**



# Needle Cracking Technique

Device delivery failure

Calcification



18G needle

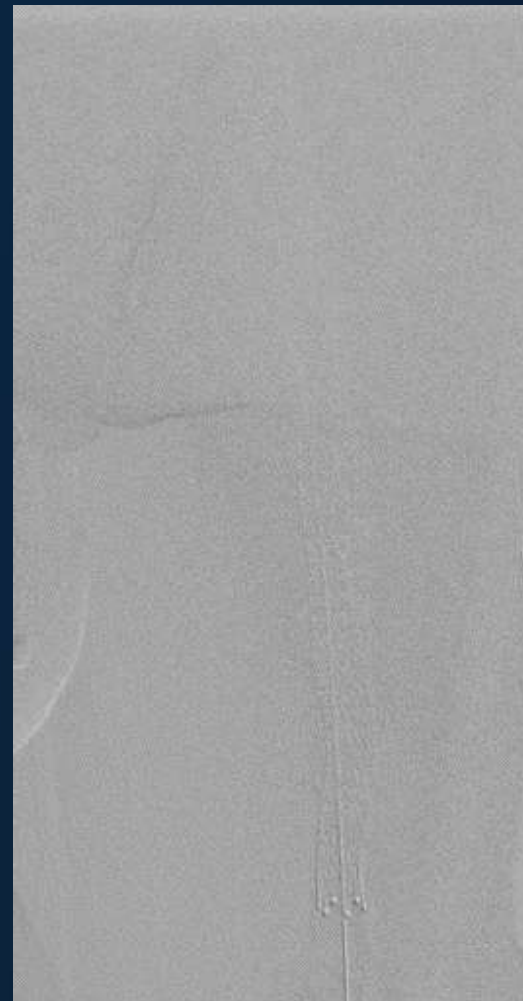
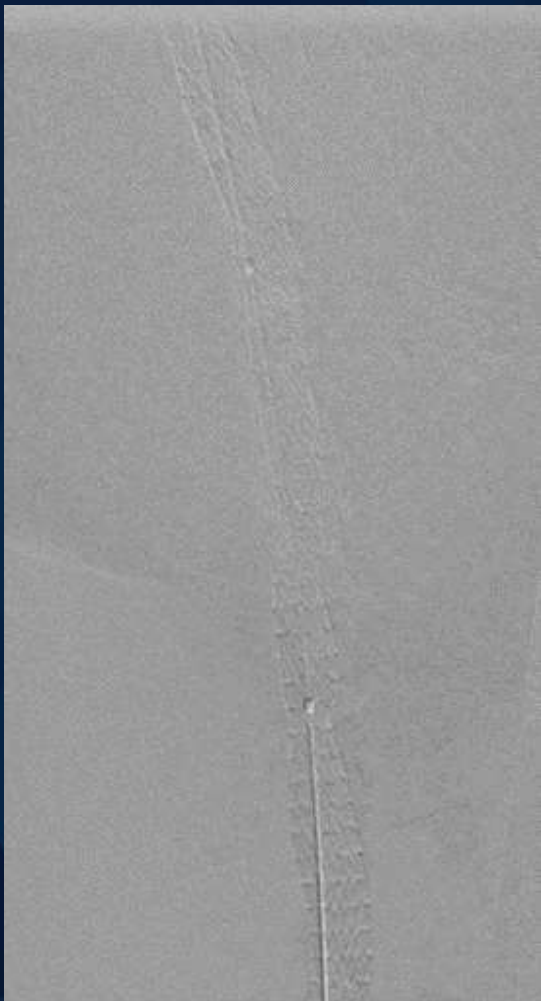




# Needle Cracking Technique

Device delivery failure

Calcification



Hemostasis with thrombin



# To fight against ISR / ISO

No effective procedure

- **Aspiration**
  - Aspiration catheter
  - Guiding catheter
  - No mechanical aspiration device
  
- **CDT**
  - Heparin + UK
  - No reimbursement when using DCB in the ISR / ISO
  
- **Stent in Stent**
  
- **Viabahn**



# To fight against Thrombus / Embolism

➤ **Aspiration**

➤ **Stenting**

➤ **Move thrombus / embolism form Non-stenting zone**

- **Gachon technique** *S. Shirai, K. Hirano, CCI 2017 May;89(6):1087-1092.*
- **Reverse Fogarty technique by Dr. Ando**



# Reverse Fogarty Technique

Non-stenting  
zone

Thrombus /  
Embolism



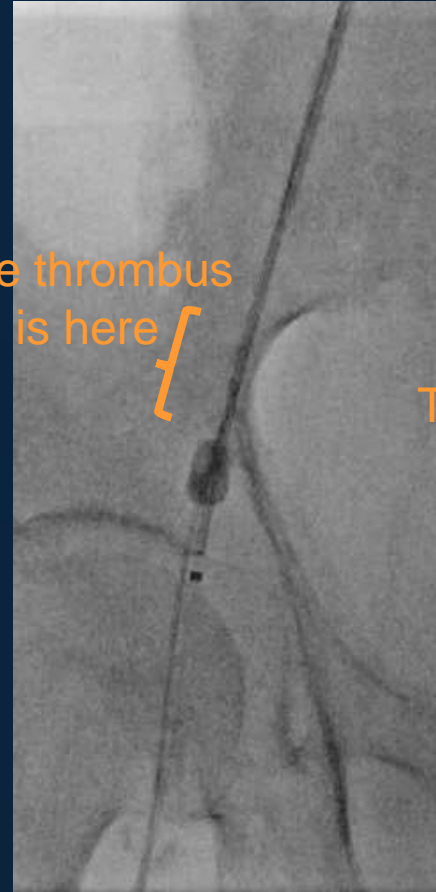
Rt. CFA total  
Cross over approach



# Reverse Fogarty Technique

Non-stenting  
zone

Thrombus /  
Embolism



5F Sheath from rt. SFA prox.  
4F Fogarty catheter

Epic stent 9.0/100



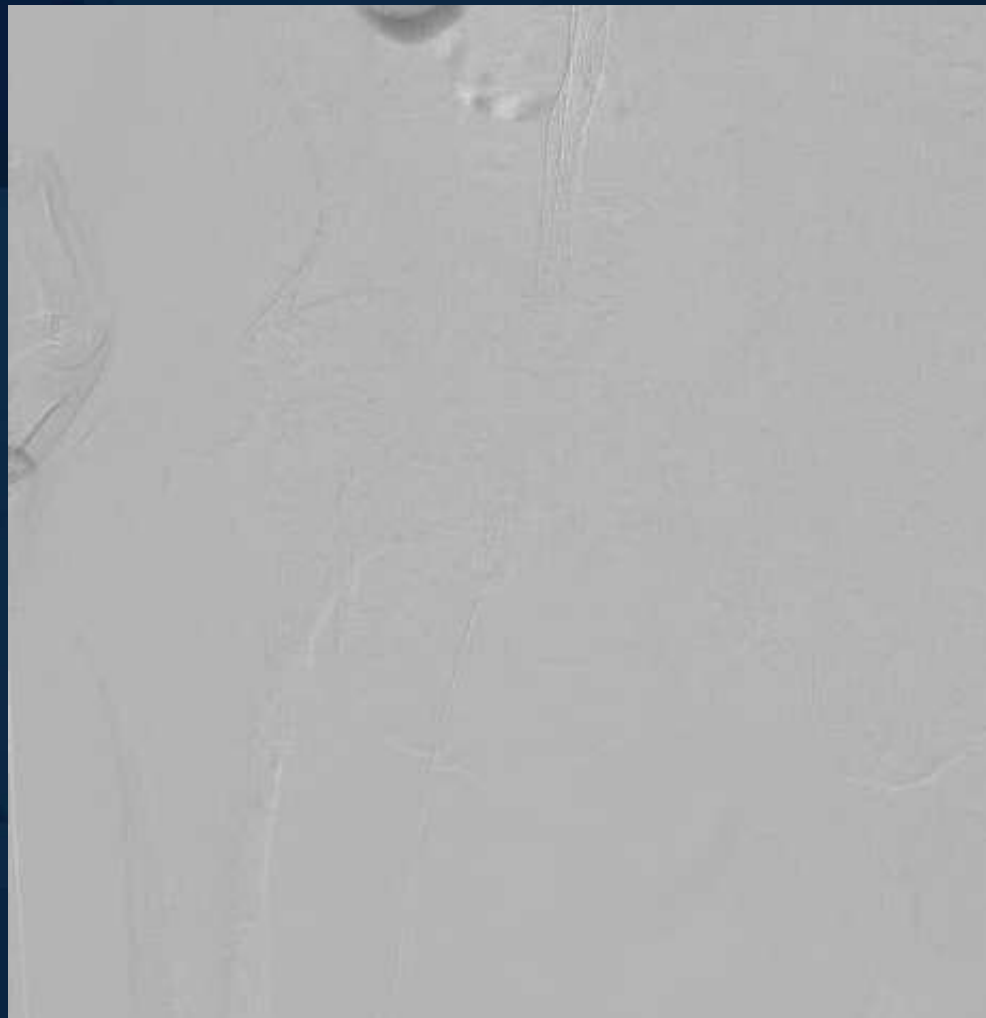


# Reverse Fogarty Technique

Non-stenting  
zone

Thrombus /  
Embolism

## Completion Angiography



# Conclusion / Take-home Message

Fighting in the absence of an atherectomy device

## ➤ Calcification

- Aggressive vessel preparation followed by stent (e.g. SUPERA)
- Special technique to modify calcification

## ➤ ISR / ISO

- DCB cannot be used and a tough battle is forced

## ➤ Thrombus / Embolism

- Aspiration or covered by stent
- Move them to the non-stenting zone and press them against the wall with a stent

