

# Strategy of rotational atherectomy for severe calcified lesion at LM bifurcation



**Shozo Ishihara**

**Mimihara General Hospital  
(Osaka, Japan)**

*Mimihara General Hospital*

# Complex PCI 2024

## COI Disclosure

*Name of First Author :*  
*Shozo Ishihara*

**I have no financial conflicts of interest to  
disclose concerning the presentation.**

## At first...

- Due to heavy snowing, my flight to Seoul is long time delaying and I cannot arrive on time.
- I am so sorry !!
- I hope to see you as soon as possible.



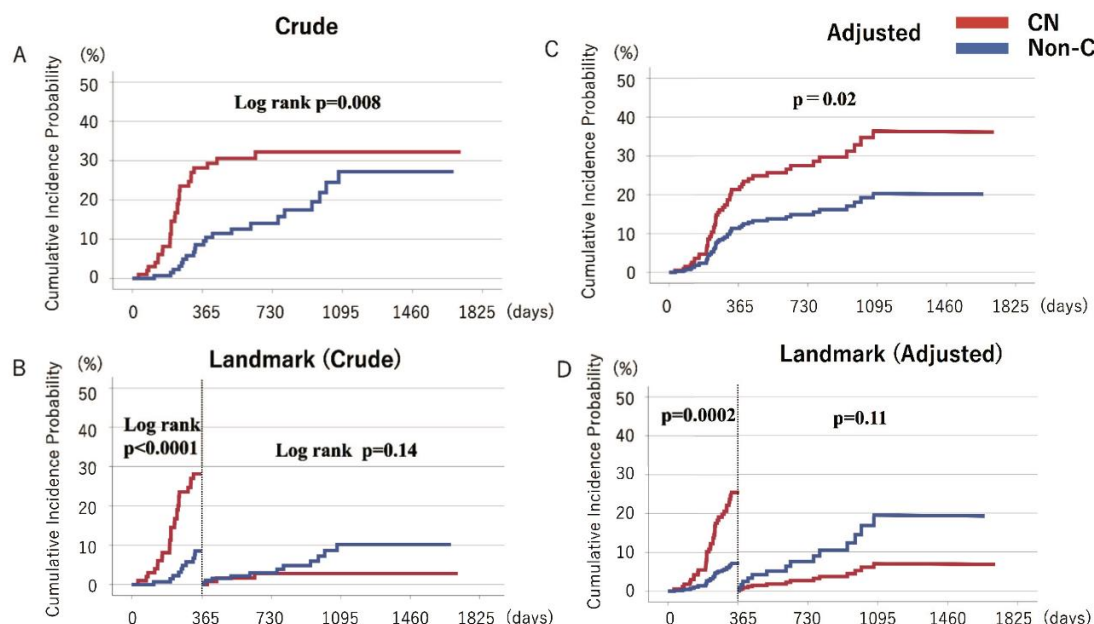
# Background

- PCI for huge calcified nodule is still challenging.
- Severe calcification at LMT is a high-risk lesion for rotational atherectomy.

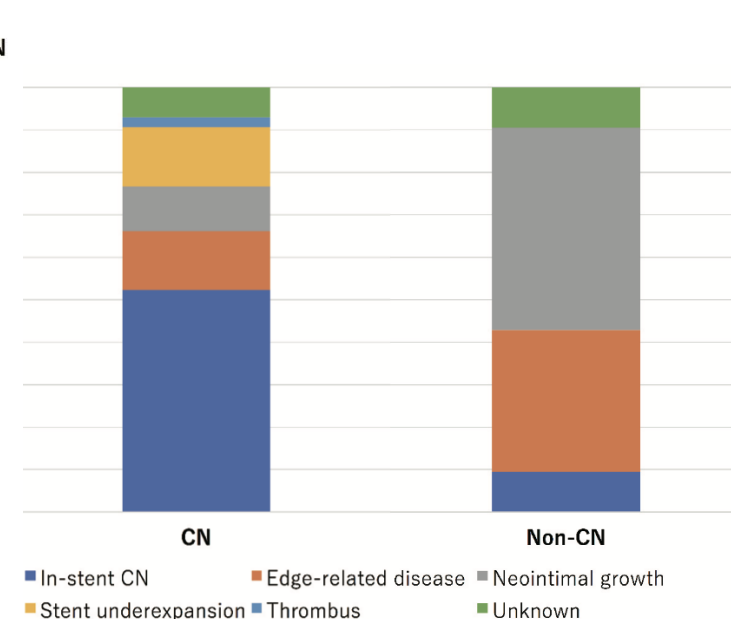
# Clinical Outcomes and Unique Restenosis of Calcified Nodule in Heavily Calcified Coronary Artery

Hiroyuki Jinnouchi, Kenichi Sakakura, Yousuke Taniguchi, Takunori Tsukui, Yusuke Watanabe, Kei Yamamoto, Masaru Seguchi, Hiroshi Wada and Hideo Fujita

Division of Cardiovascular Medicine, Saitama Medical Center, Jichi Medical University, Saitama, Japan



**Fig. 2.** Comparison of clinically driven target lesion revascularization between the CN and non-CN groups



**Fig. 3.** Prevalence of reasons for CD-TLR in the CN and non-CN groups

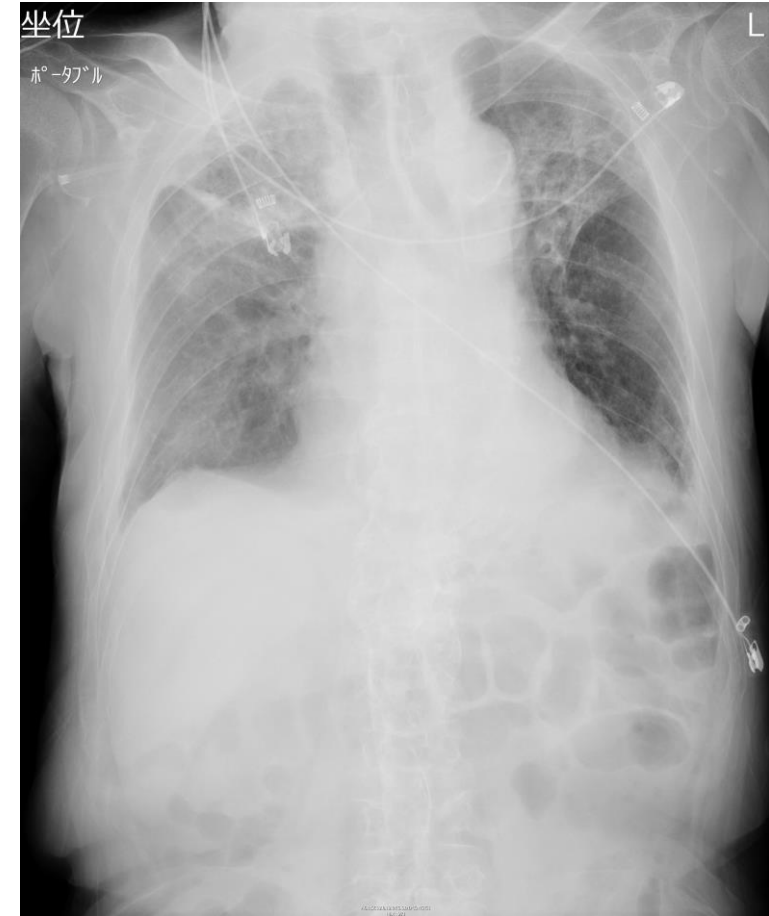
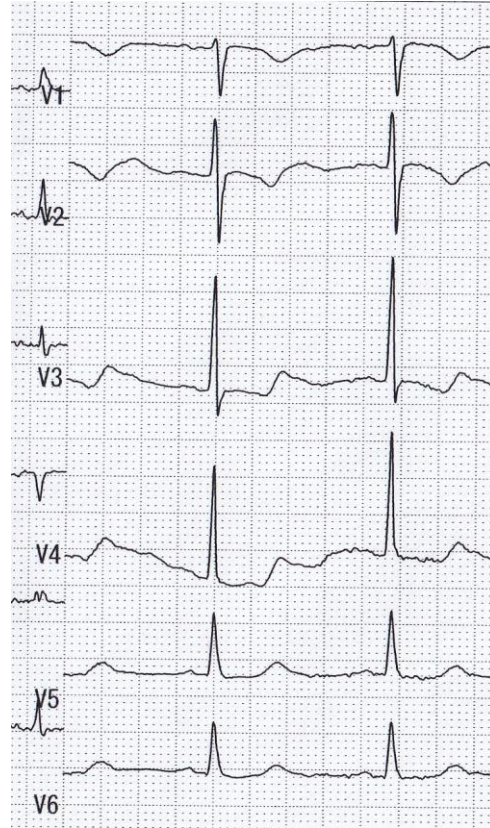
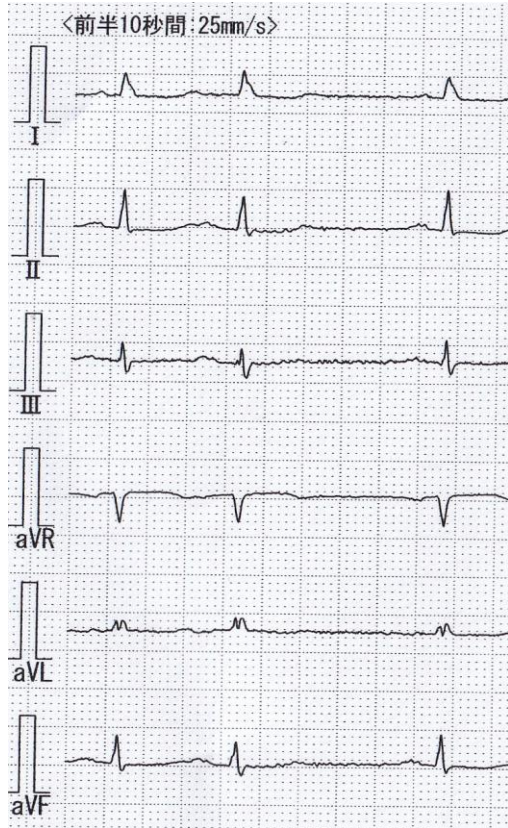
**Case: 70 y.o. Male**

**Congestive Heart Failure  
Stable Angina**

- **RCA CTO**
- **LMT-LCX 90% with severe calcification**



# ECG ・ Chest XP



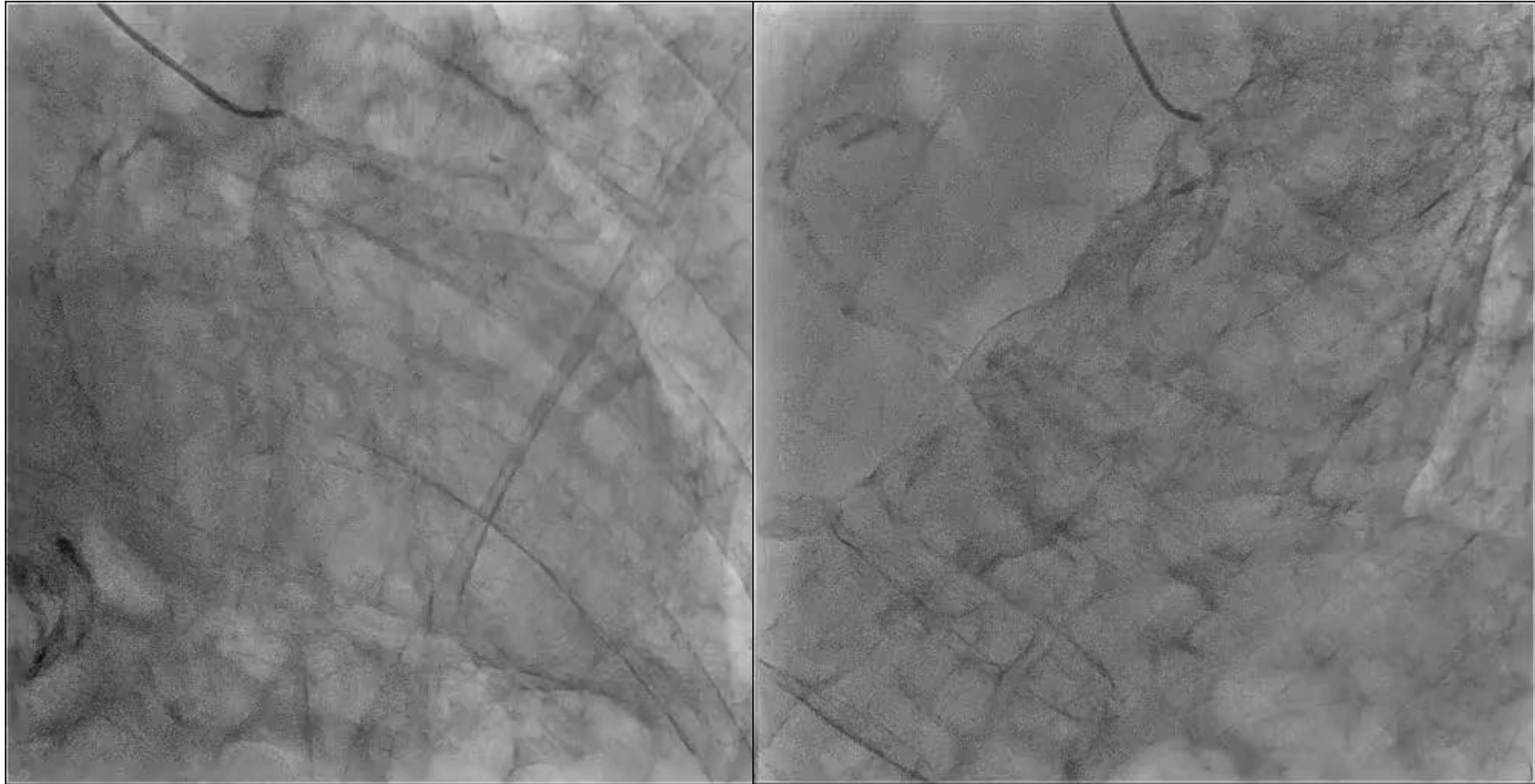
## 【Coronary Risk factor】

Hypertension, Dyslipidemia, past smoking

eGFR=56.0, EF=48%

**70y.o Male : SAP 2VD**

**EF 48%, eGFR 56**



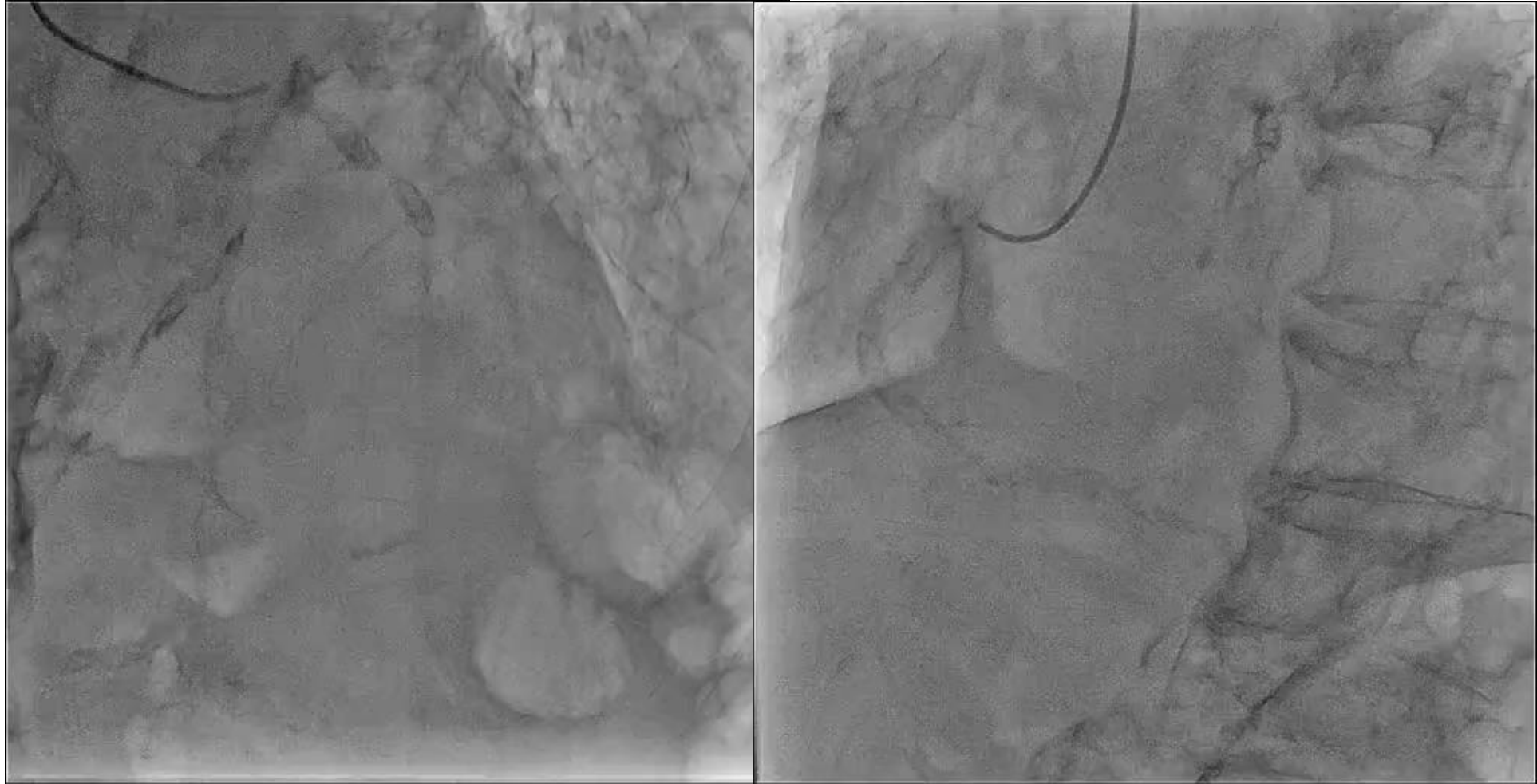
**Huge calcified nodule in LM-LCXos**

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**70y.o Male : SAP 2VD**

**EF 48%, eGFR 56**

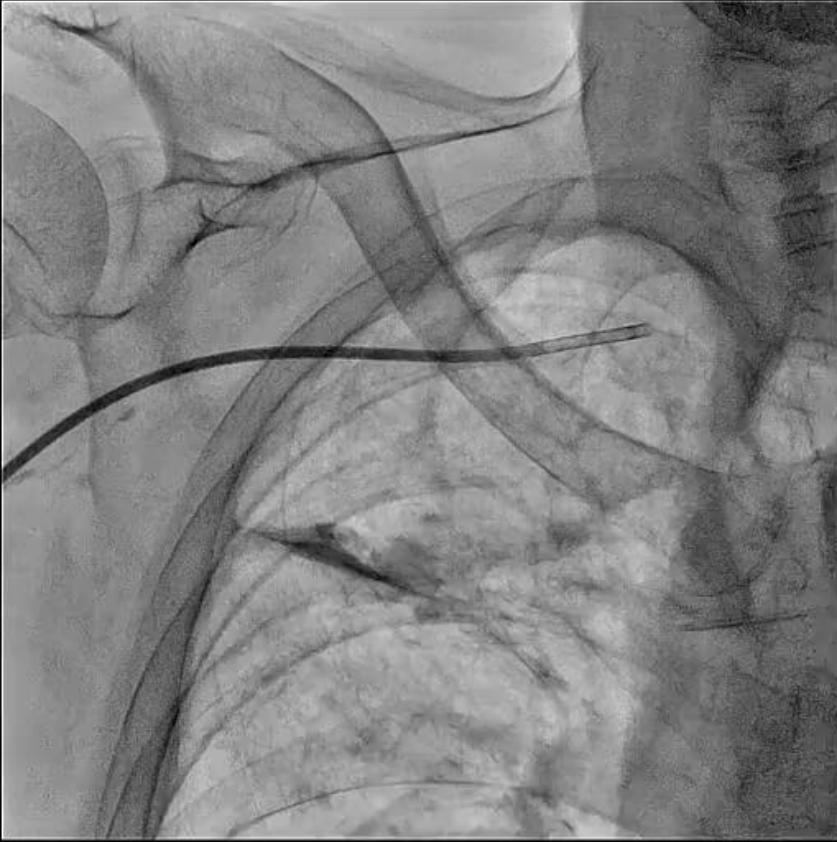


**Huge calcified nodule in LM-LCXos**

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**70y.o Male : SAP 2VD**

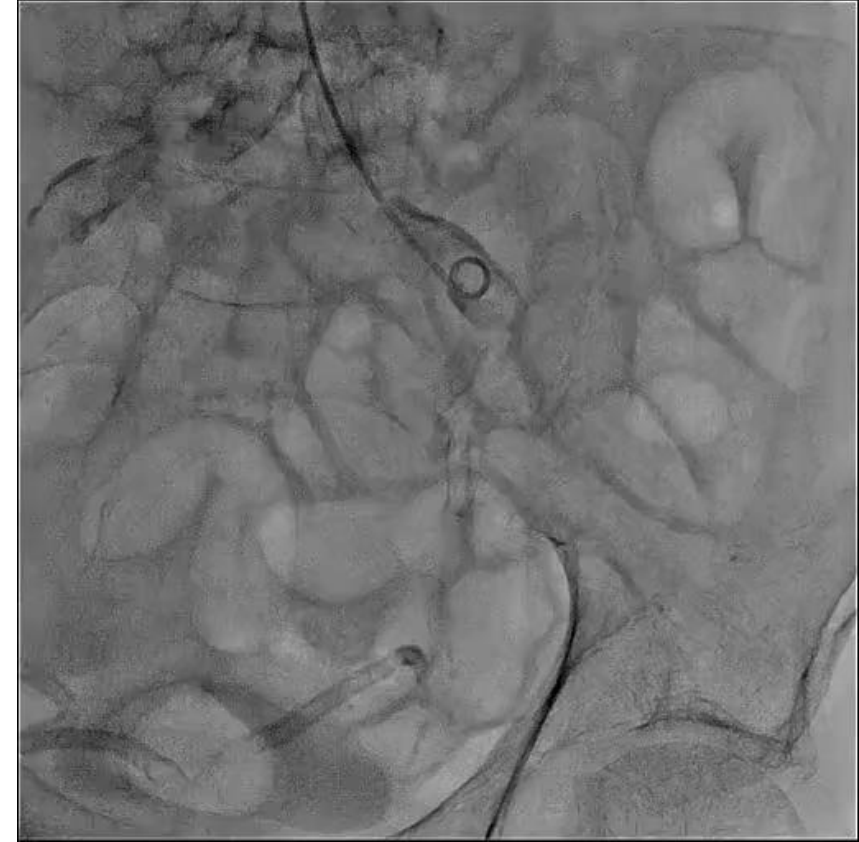
**EF 48%, eGFR 56**



**Rt. subcrabian a  
: severe stenosis**



**Rt. SFA : sub total**



**Lt. EIA : total occlusion**

# Discussion

**RCA : CTO with severe calcification**

**LCA : huge calcified nodule at LMT & LCX ostium**

- RCA first? LCA first?
- Strategy of calcium modification  
Rota? OAS? IVL? Other options?
- Risk management (perforation, device stuck..)

# Discussion

**RCA : CTO with severe calcification**

**LCA : huge calcified nodule at LMT & LCX ostium**

- **RCA first?** LCA first?
- Strategy of calcium modification  
Rota? OAS? IVL? Other options?
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# RCA severe calcified lesion



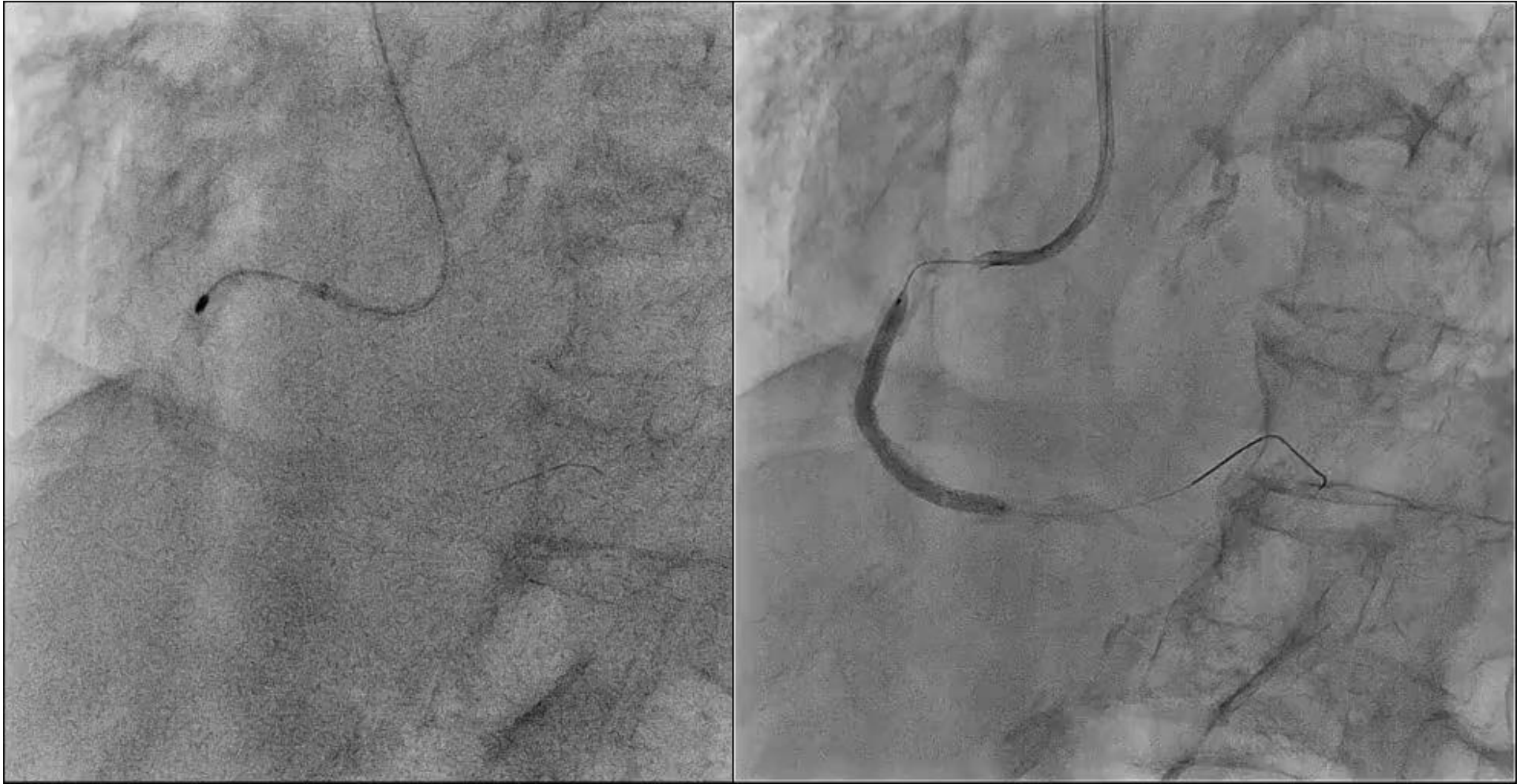
XT-A and Caravel passed the lesion

1.25mm burr

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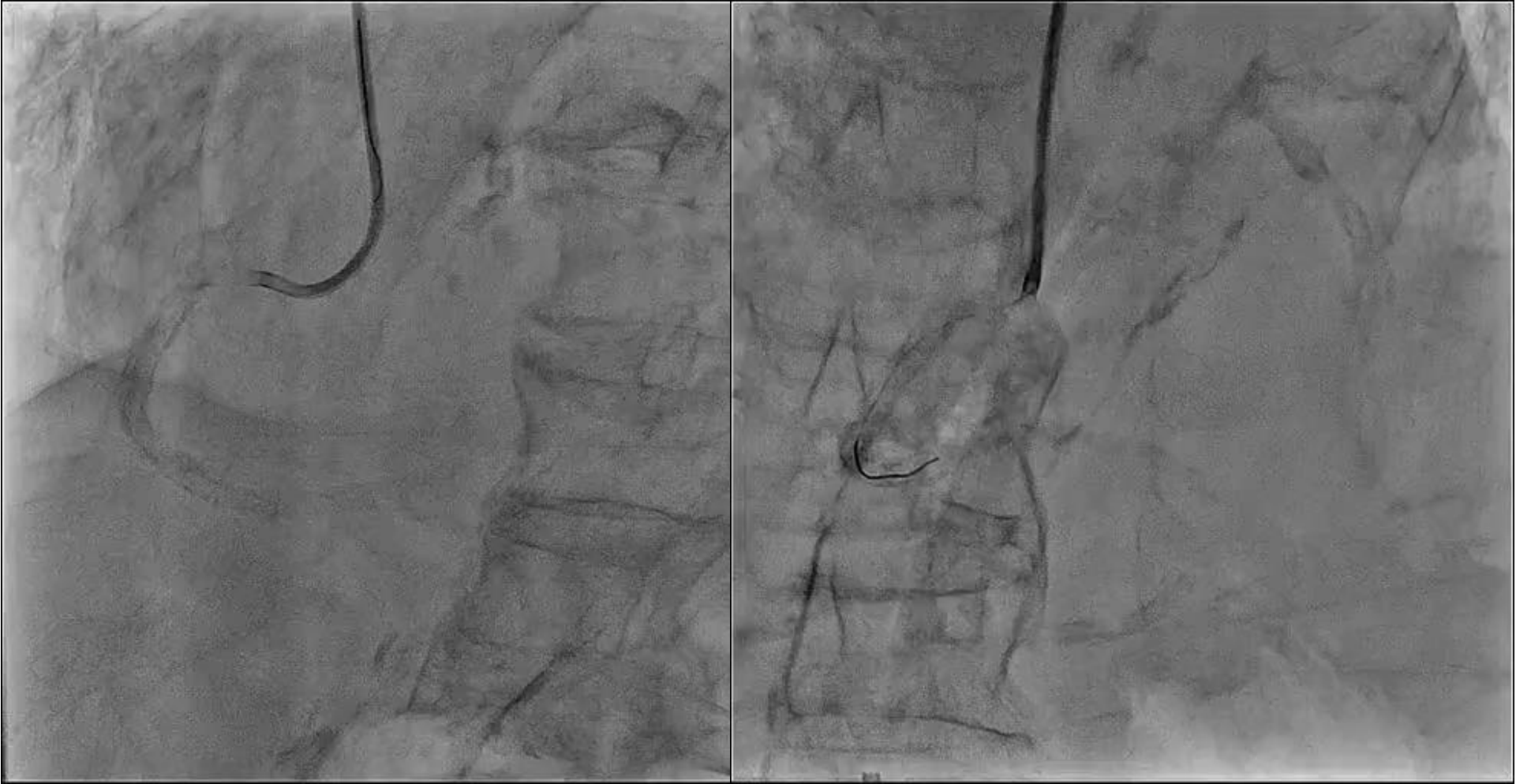
# RCA severe calcified lesion



Size up to 1.75mm

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# RCA severe calcified lesion



**Final**

# Discussion

RCA : CTO with severe calcification

**LCA : huge calcified nodule at LMT & LCX ostium**

- Strategy of calcium modification  
Rota? OAS? IVL? Other options?
- Risk management (perforation, device stuck..)

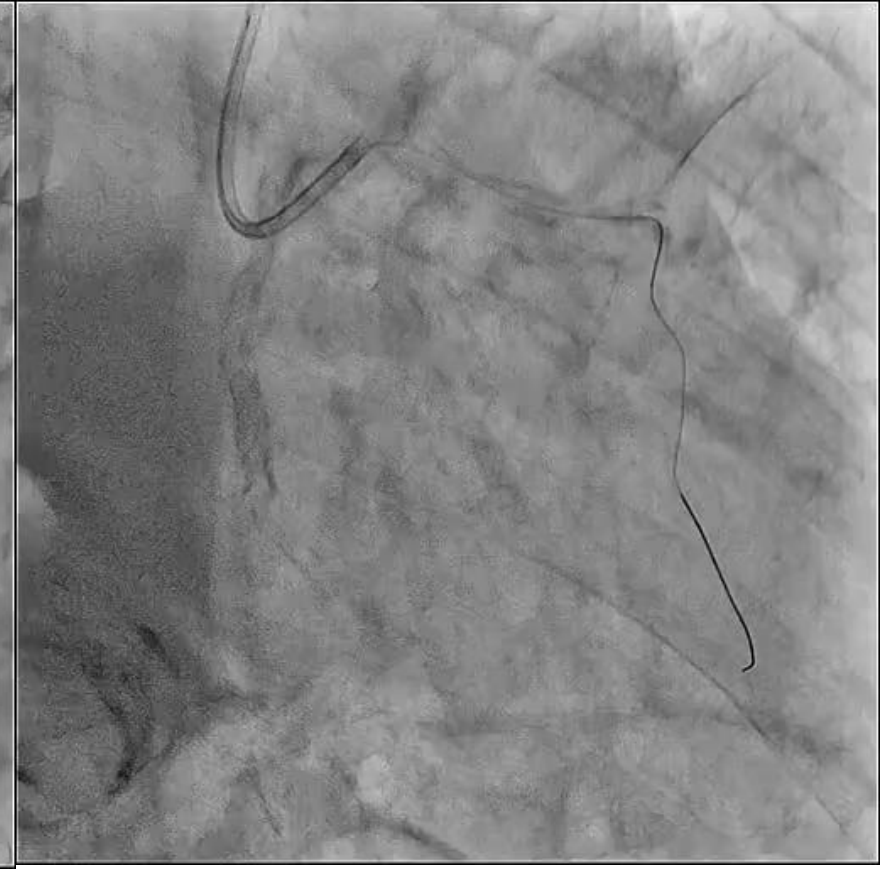
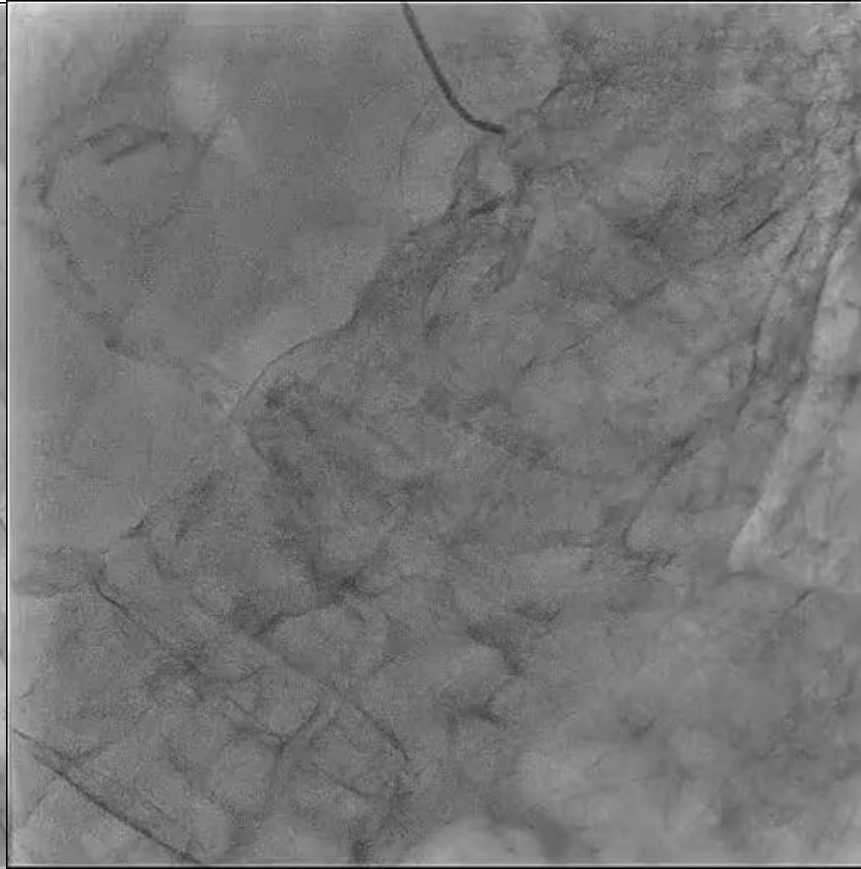


# PCI for LMT & LCX

Huge calcified nodule in LM-LCXos

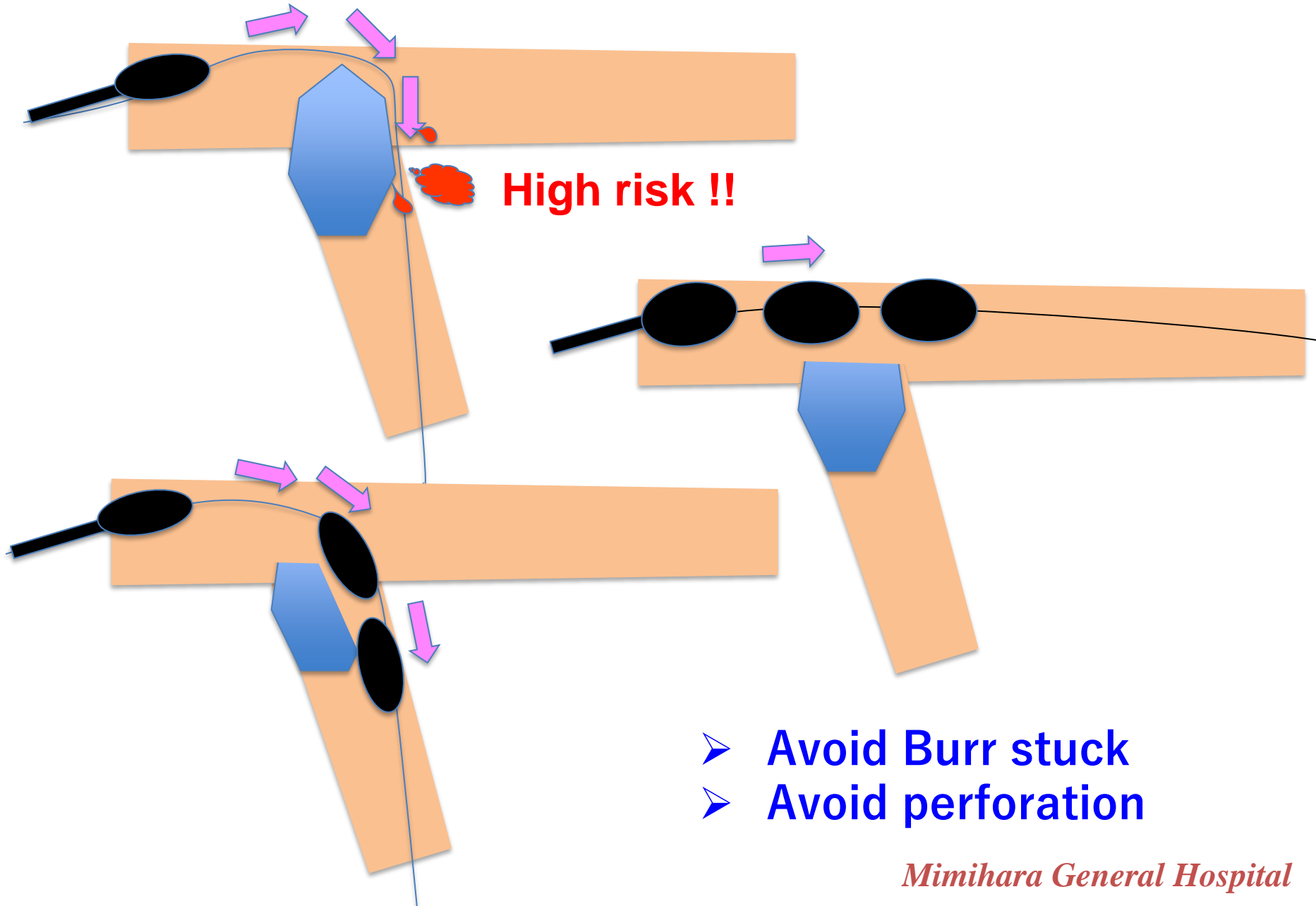


**Diagnostic coronary angiography**



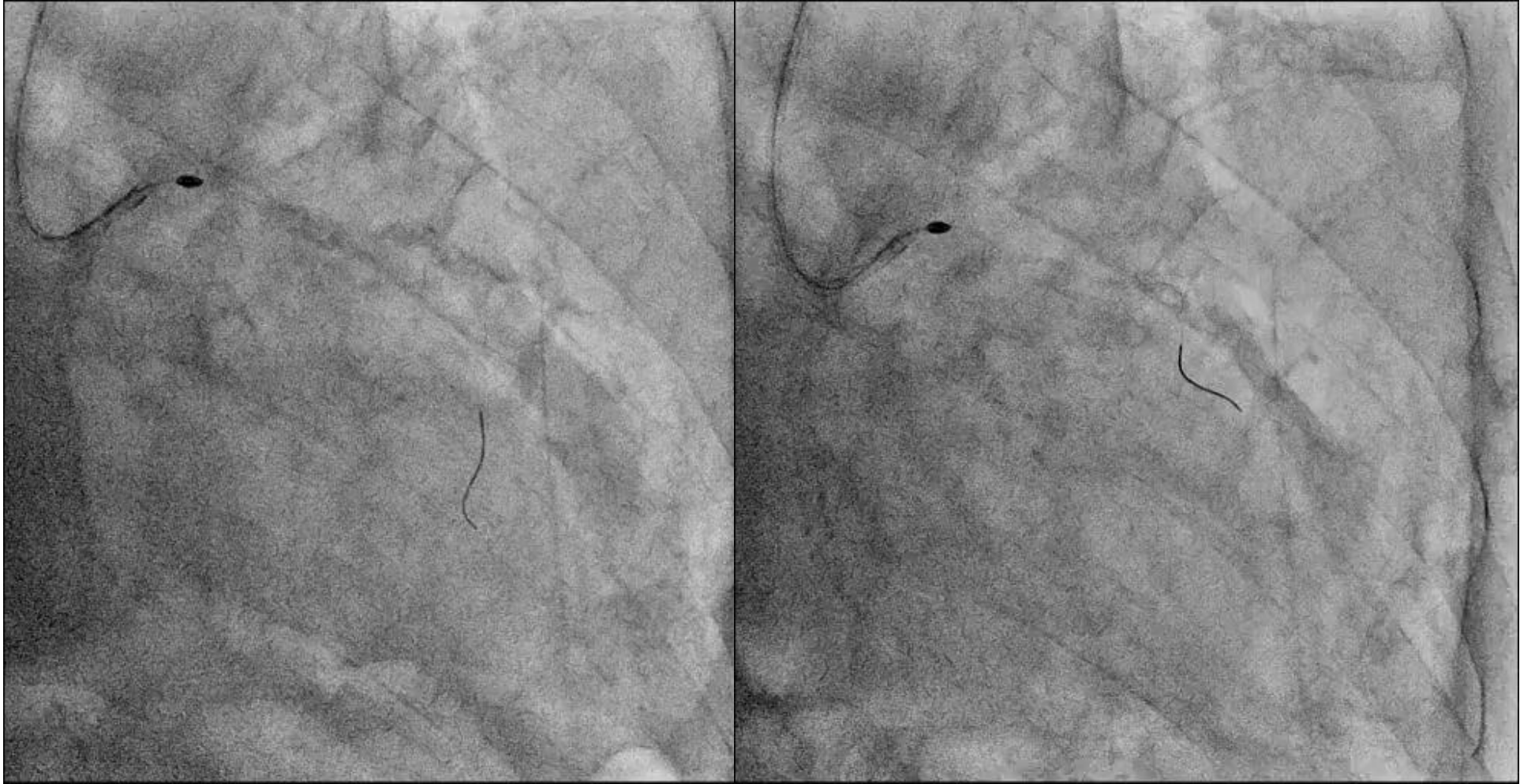
**LCA after PCI of RCA**

## 2 step ablation method for LCX ostium





# LCX severe calcified lesion



Rota floppy & 2.0mm burr

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# LCX severe calcified lesion

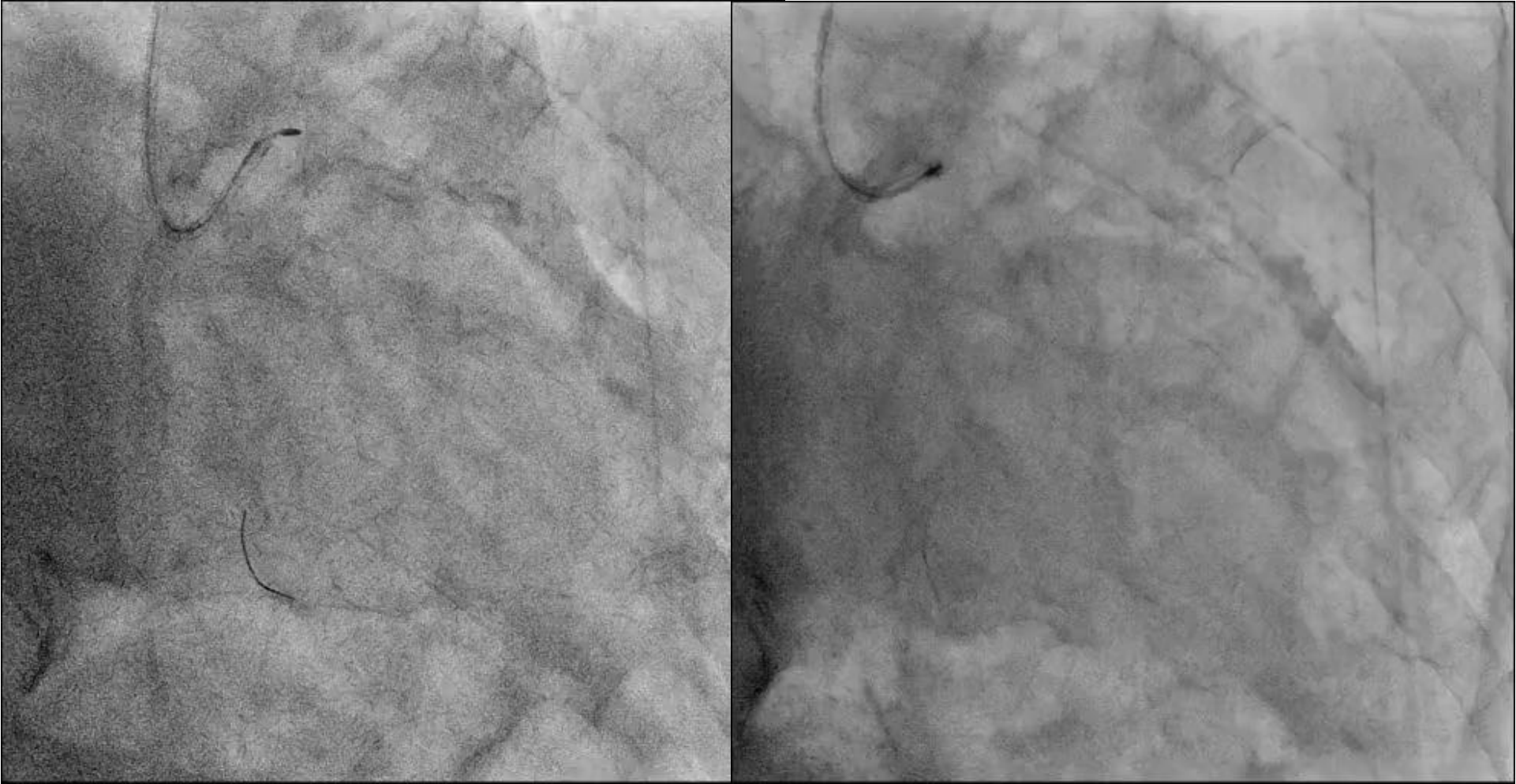


**Crusade + XT-R**

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# LCX severe calcified lesion



Rota floppy & 1.25mm burr

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# LCX severe calcified lesion



**1.25mm burr**

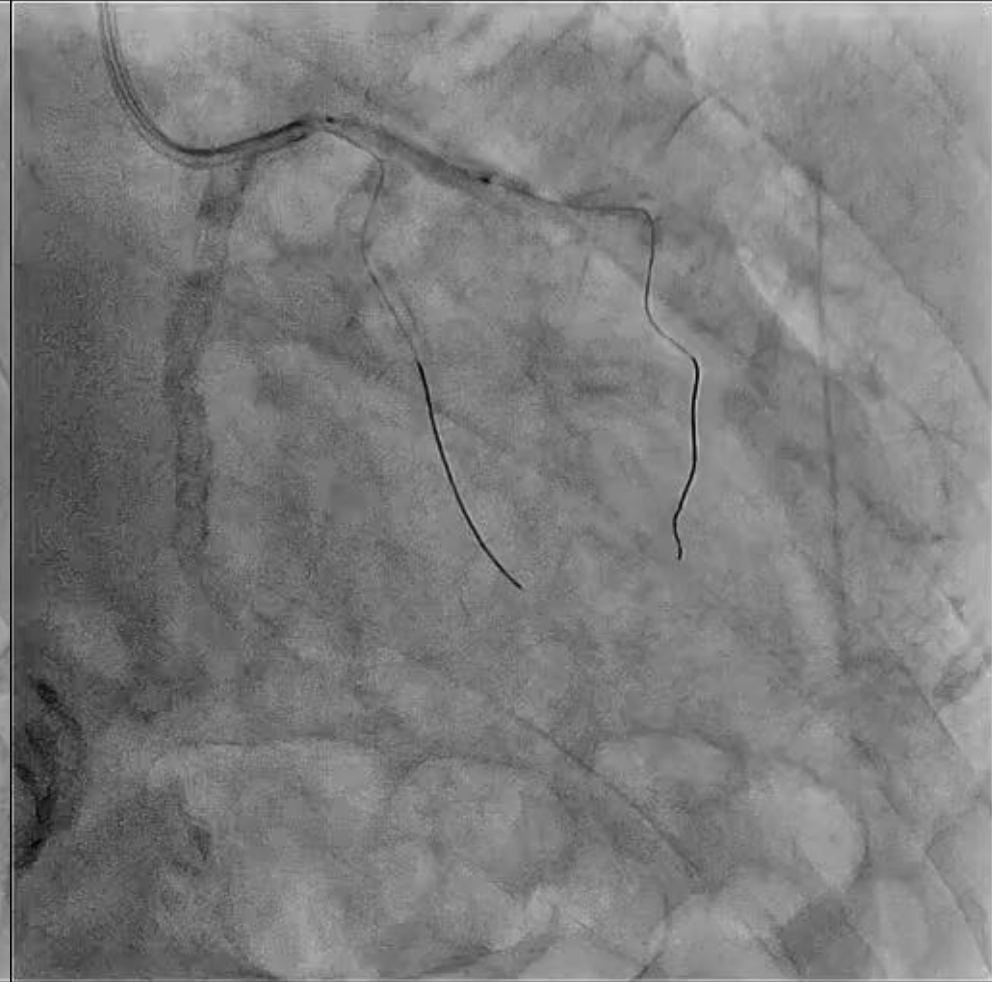
**ZINRAI 2.0x15mm**

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# LCX severe calcified lesion



**DCB 3.0x15mm**

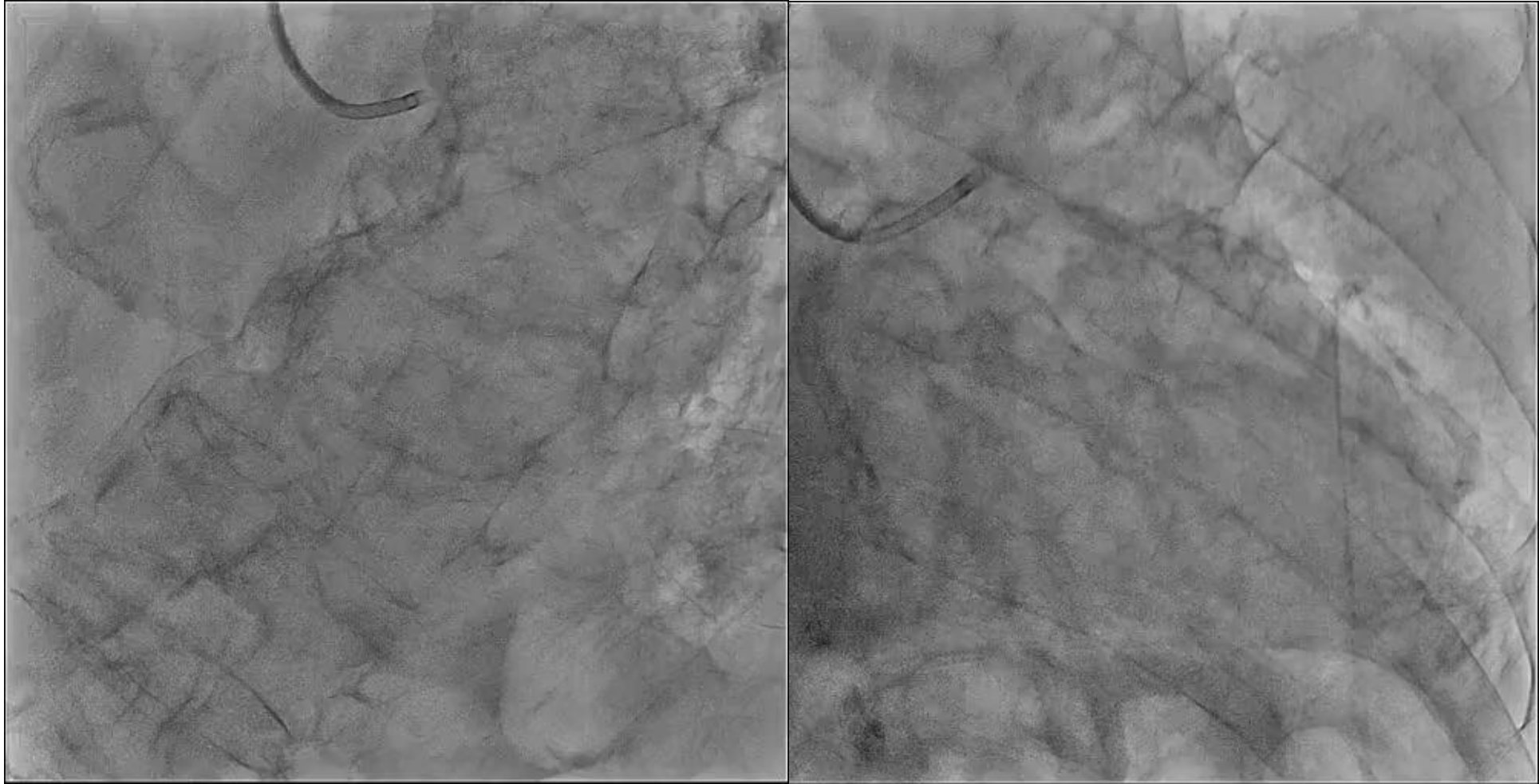


**DCB 3.5x20mm**

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# LCX severe calcified lesion



**Final**

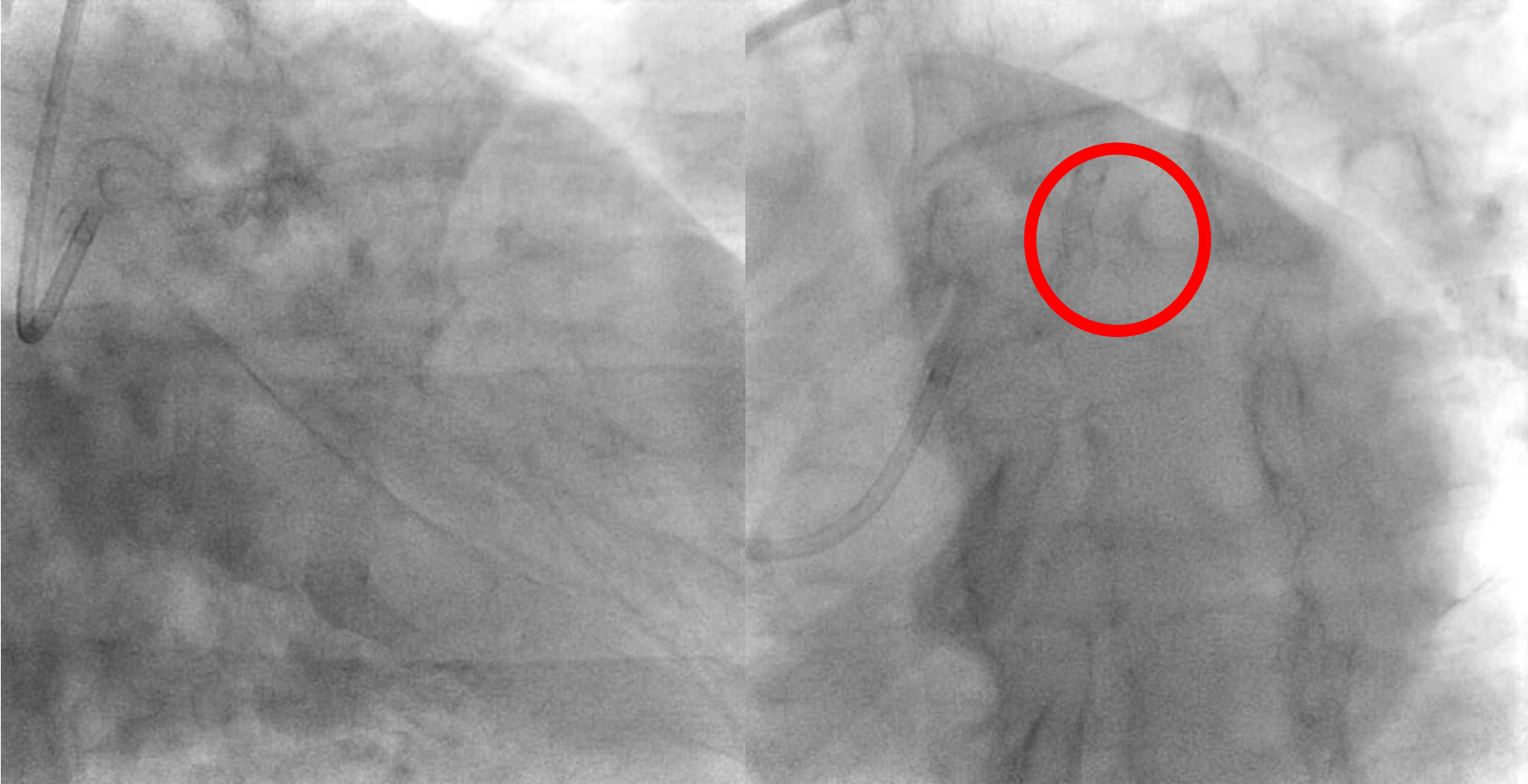
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# Discussion

## Problem of Calcified nodule (CN) at LCX ostium

- Poor clinical outcome
- Risk of Rotablator burr stuck
- Risk of coronary perforation

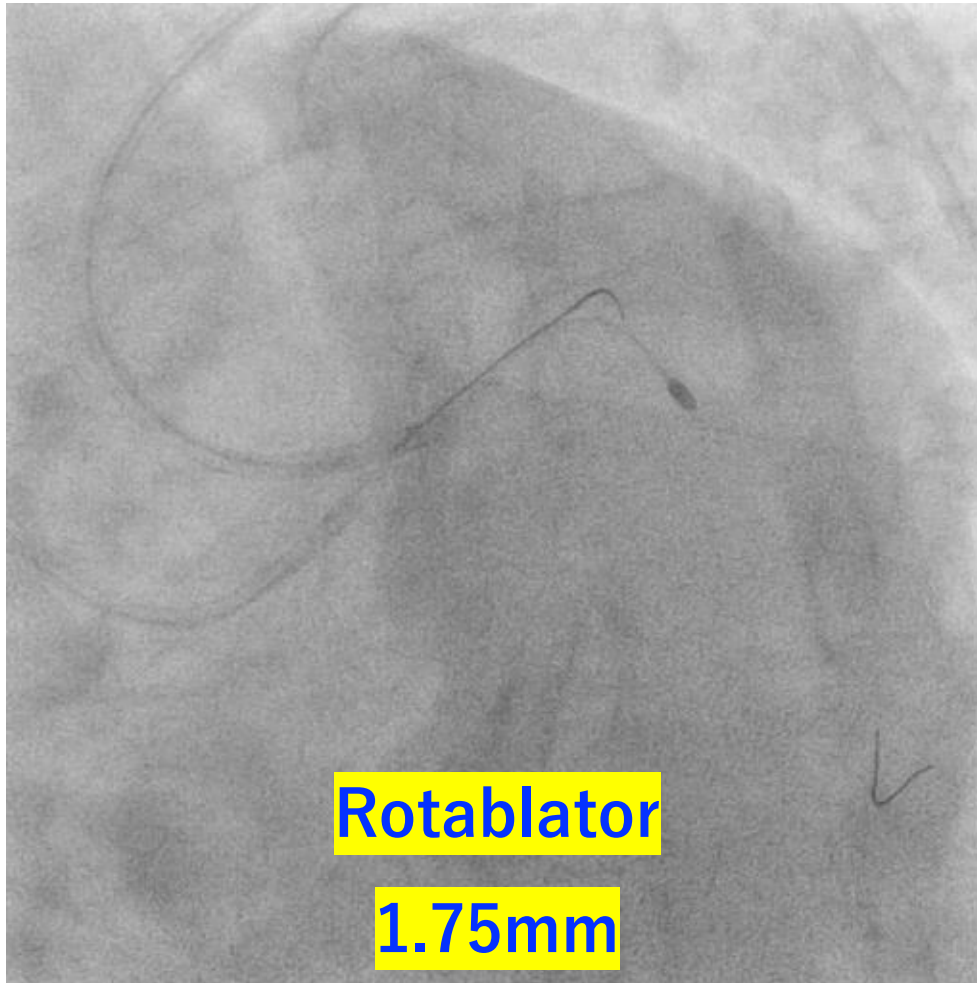
# Calcified nodule at LCX ostium



**LCX#11os)99% with  
calcified nodule**

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# Calcified nodule at LCX ostium



**Rota burr Stuck**

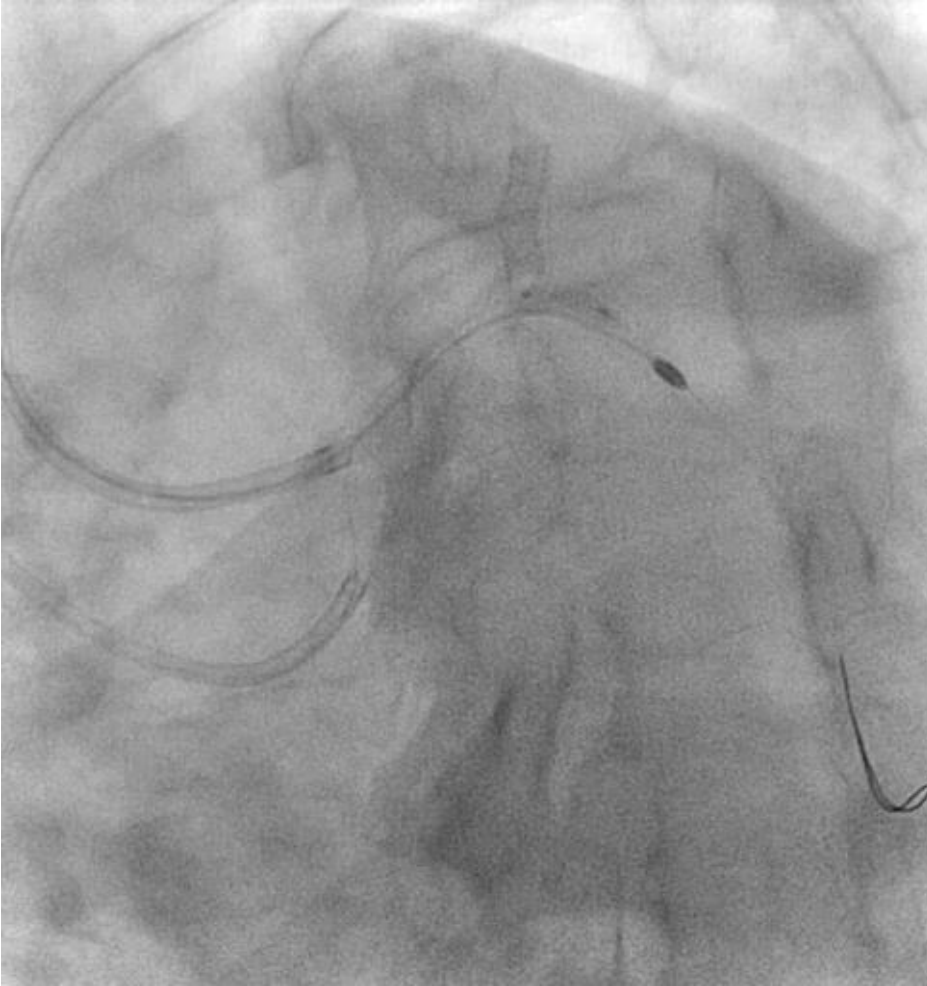
**!!**

**Insert one more guiding  
catheter**

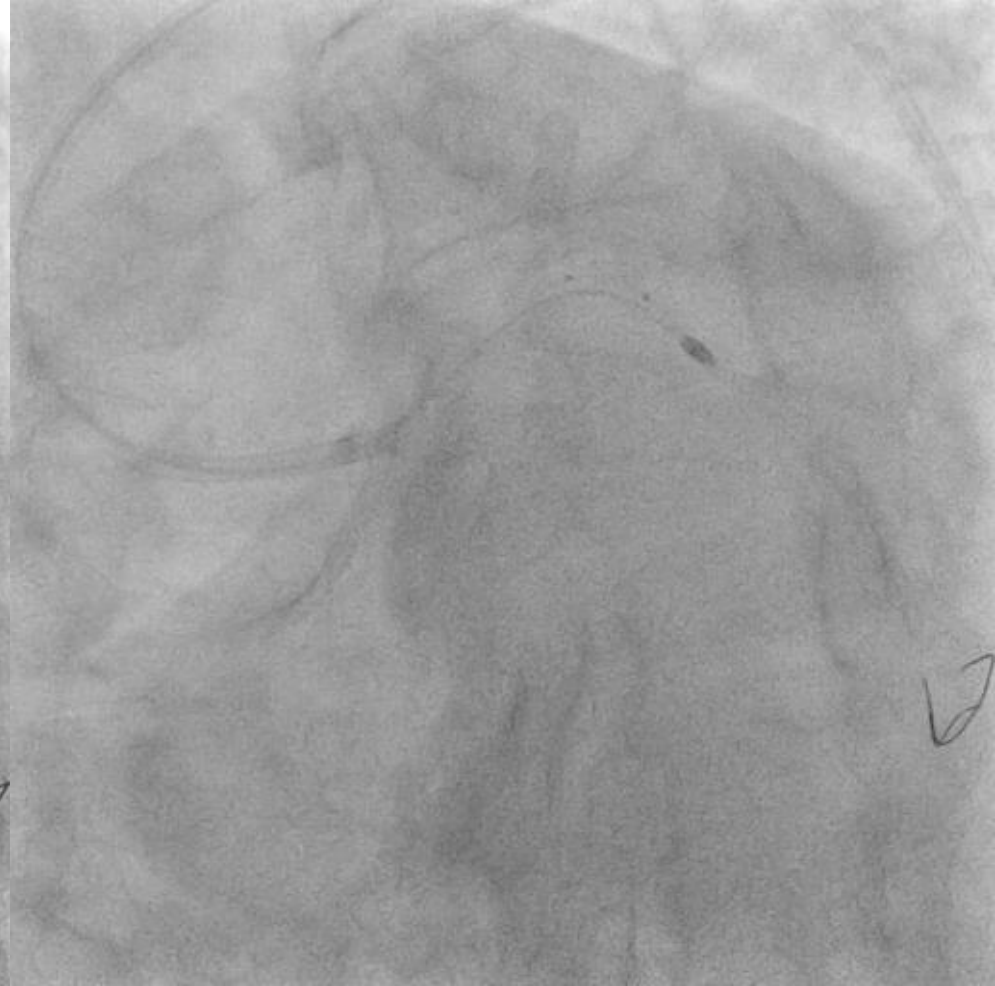
**Sionblack passed beside  
the stuck burr**



# Rotablator burr stuck



**Double guiding system  
and balloon dilation**

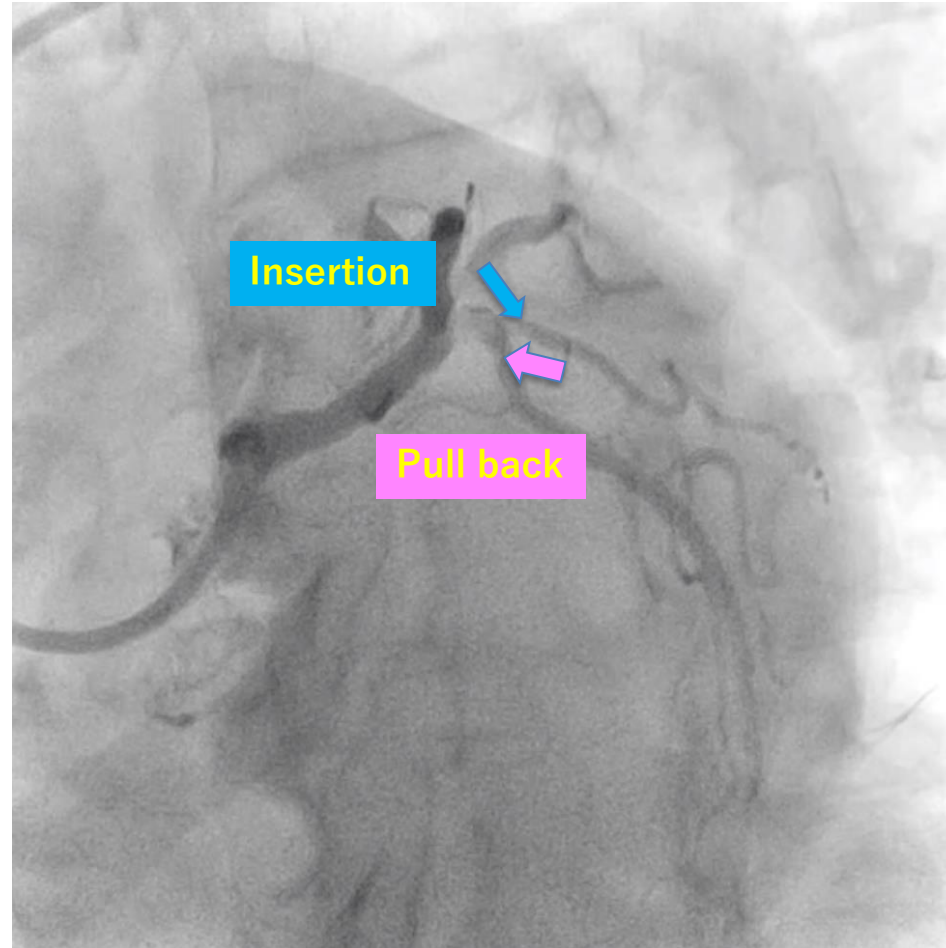


**Successfully retrieved**

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# Risk of burr stuck



Different force direction between insertion and pull back

→ High risk of burr stuck !!

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# Discussion

## Problem of Calcified nodule (CN) at LCX ostium

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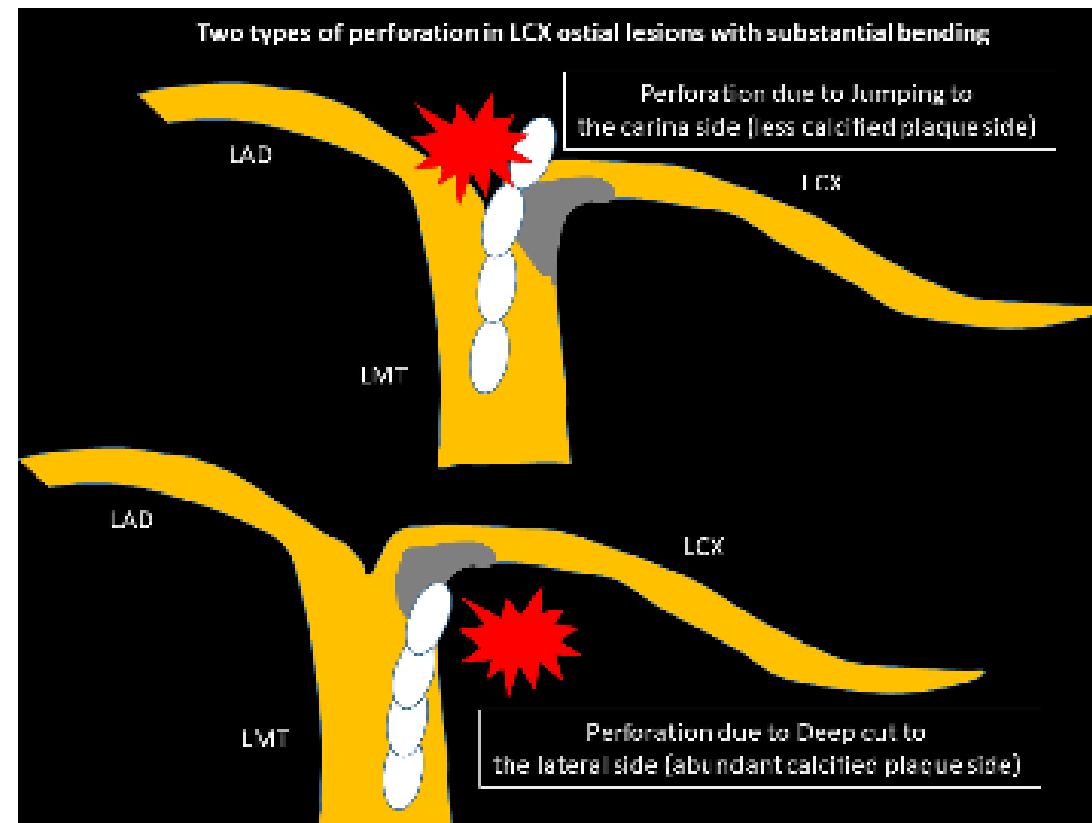
# Clinical expert consensus document on rotational atherectomy from the Japanese association of cardiovascular intervention and therapeutics: update 2023

Kenichi Sakakura<sup>1</sup> · Yoshiaki Ito<sup>2</sup> · Yoshisato Shibata<sup>3</sup> · Atsunori Okamura<sup>4</sup> · Yoshifumi Kashima<sup>5</sup> ·  
Shigeru Nakamura<sup>6</sup> · Yuji Hamazaki<sup>7</sup> · Junya Ako<sup>8</sup> · Hiroyoshi Yokoi<sup>9</sup> · Yoshio Kobayashi<sup>10</sup> · Yuji Ikari<sup>11</sup>

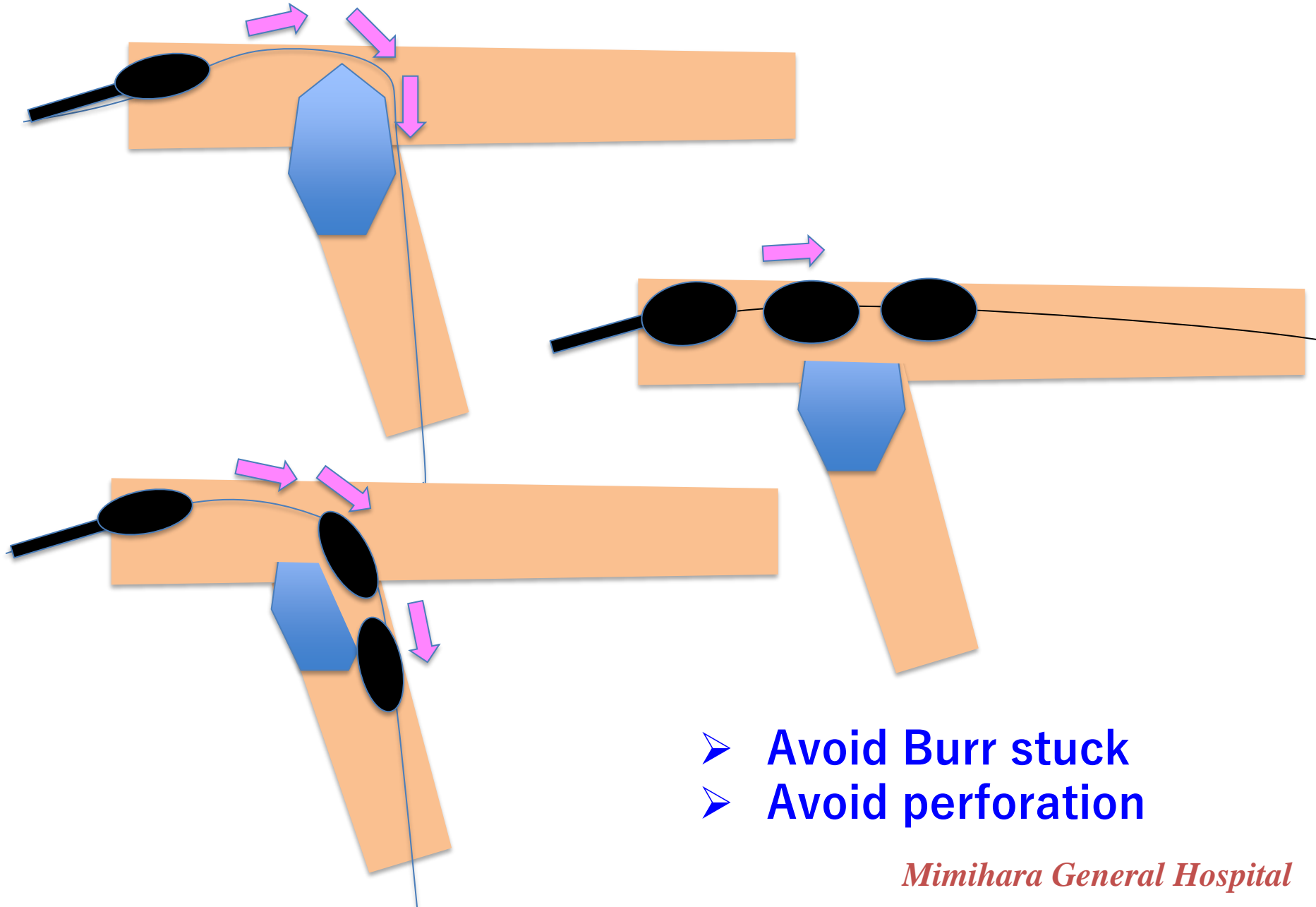
**Specific lesions:  
LCX ostial lesions  
with substantial  
bending**



**High risk of  
Coronary perforation**



## 2 step ablation method for LCX ostium



- Avoid Burr stuck
- Avoid perforation



# Conclusion

- Calcified nodule at LMT and/or LCX ostium is a still challenging lesion
- 2 step ablation for calcified nodule at LM bifurcation might be a good option for effective and safe rotational atherectomy