

TSOC-KSC joint symposium



SEJONG GENERAL HOSPITAL
SEJONG CARDIOVASCULAR CENTER

Rotablation for True Bifurcation Lesions: Korean Experience

Hyun Jong Lee, MD

**Division of Cardiology, Department of Internal Medicine,
Sejong General Hospital, Bucheon, South Korea**

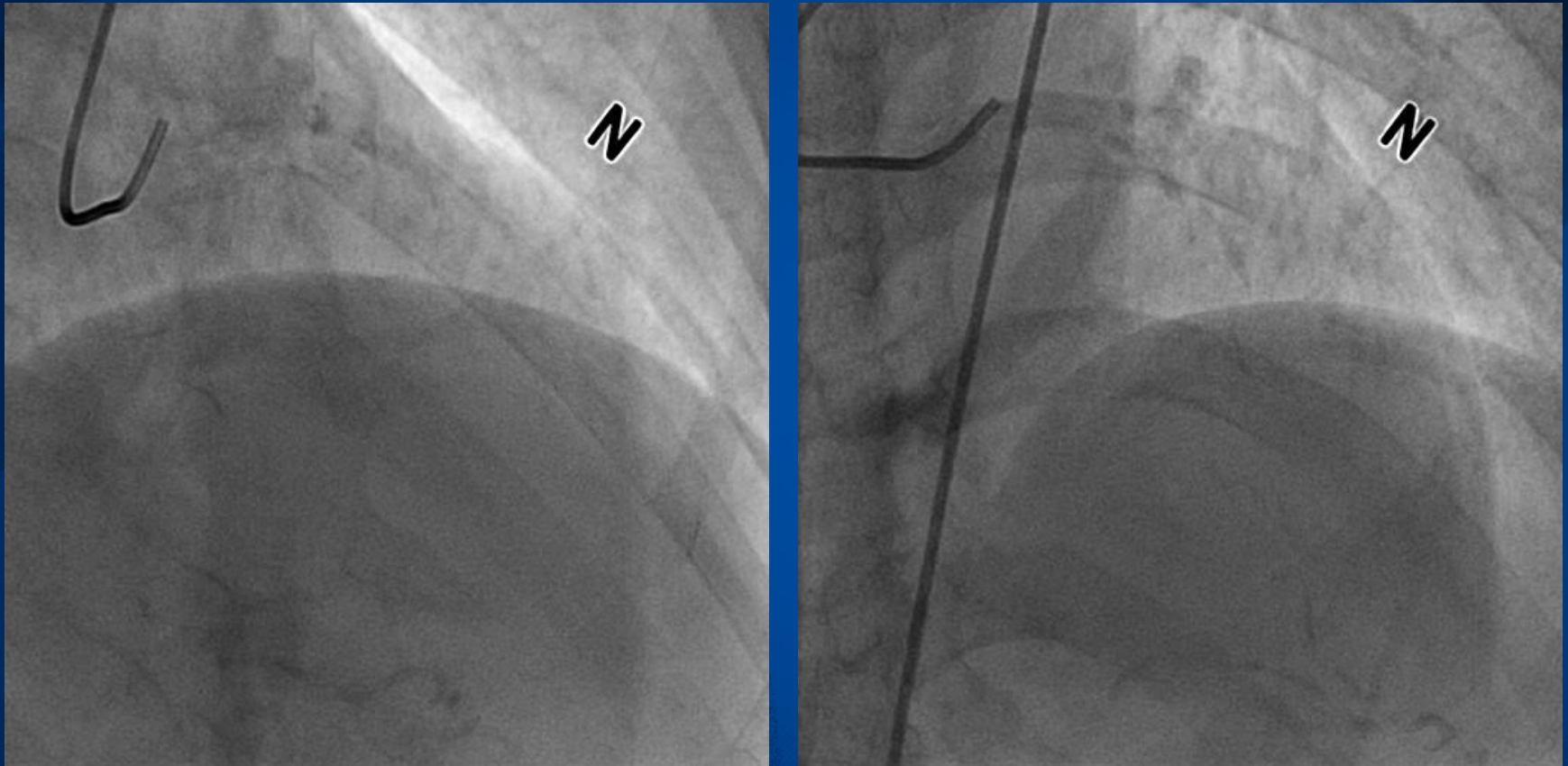
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Considerations about RA in TBL

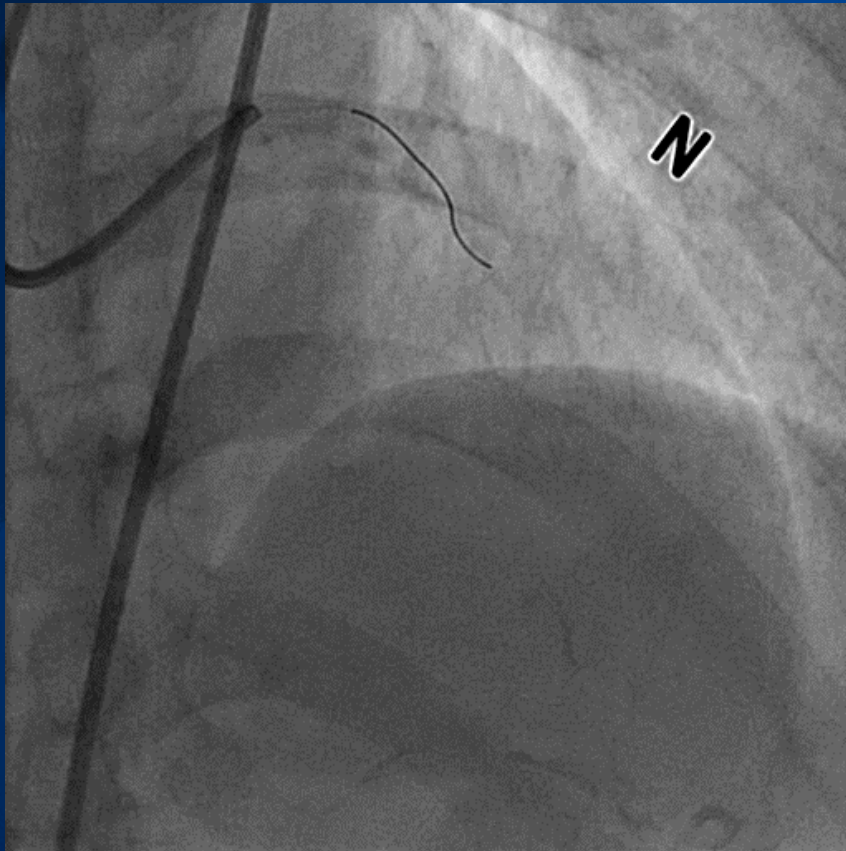
- Cannot protect SB with wire during MV RA
- If two stent technique is needed, SB RA before MV stenting
- Stent under-exansion and malapposition were more common than non-calcified true bifurcation lesion
-> post-dilation with non-compliant balloon was highly recommend after rotablation

F/64, Stable angina

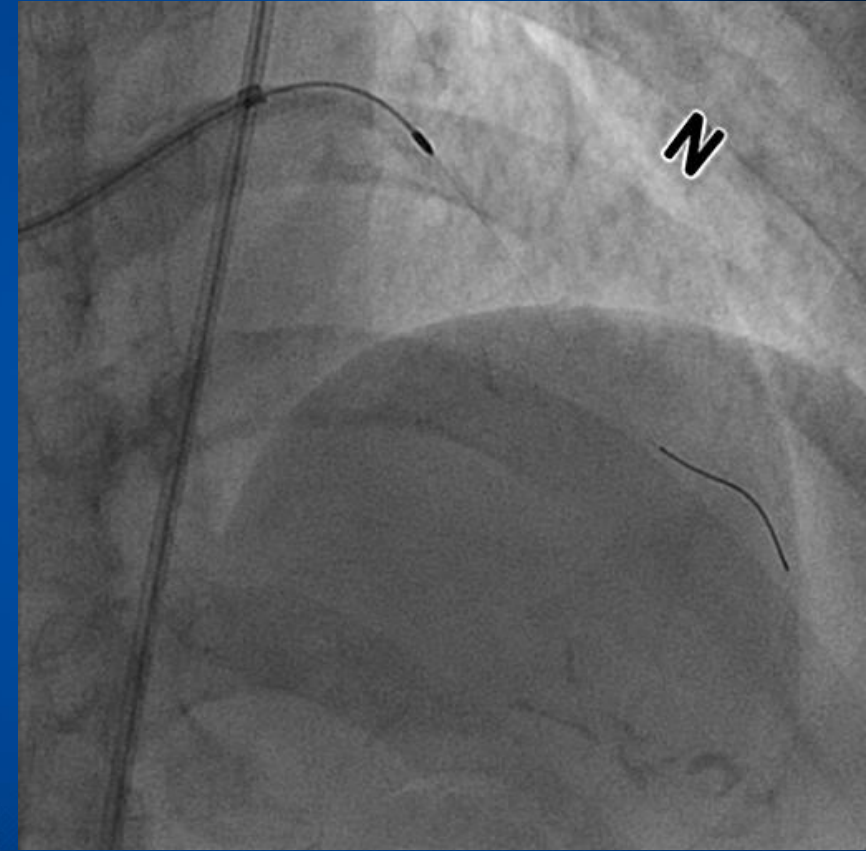


Medina 1,1,1-typed lesion in LAD & D2 bifurcation
heavy calcifications in MV proximal and SB os-prox

Side branch elective rotablation, 7Fr XB 3.5 guiding catheter

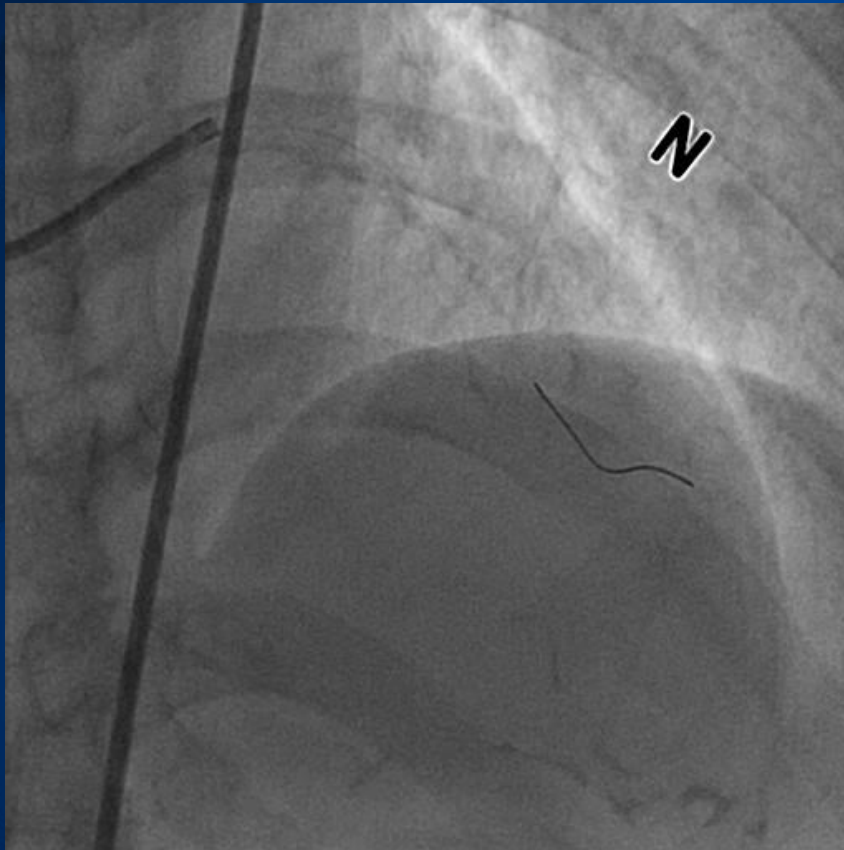


Not easy to cross the wire at SB
lumen cross the calcium valley



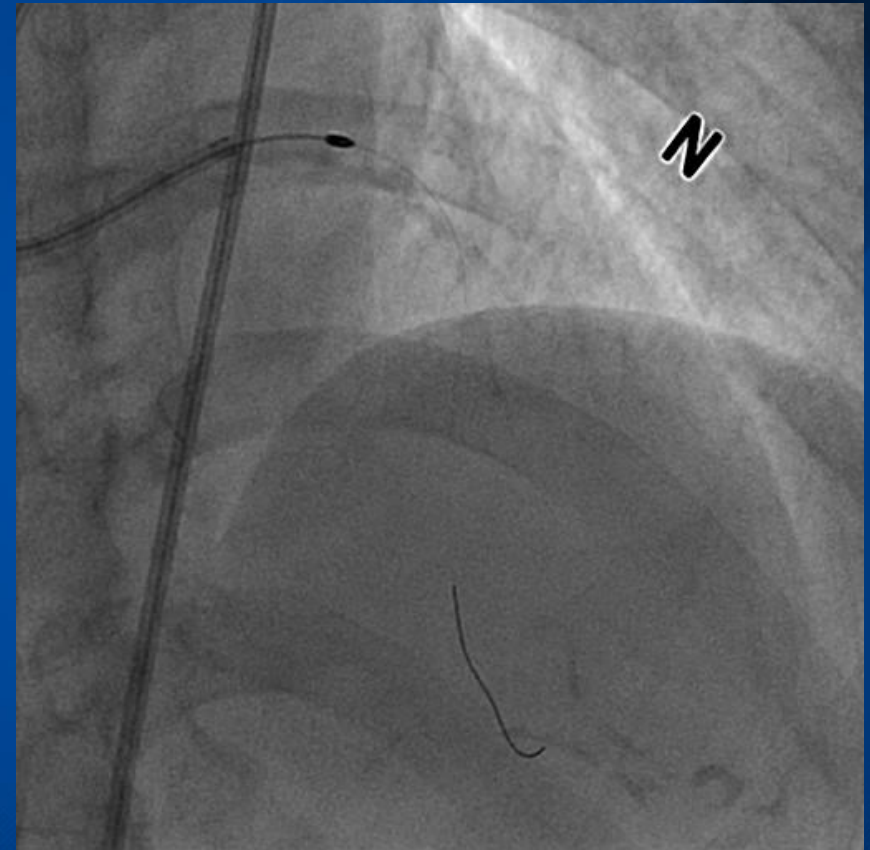
1.25 and 1.5 mm burrs with 150~180K RPMs
at SB

MV rotablation and stenting



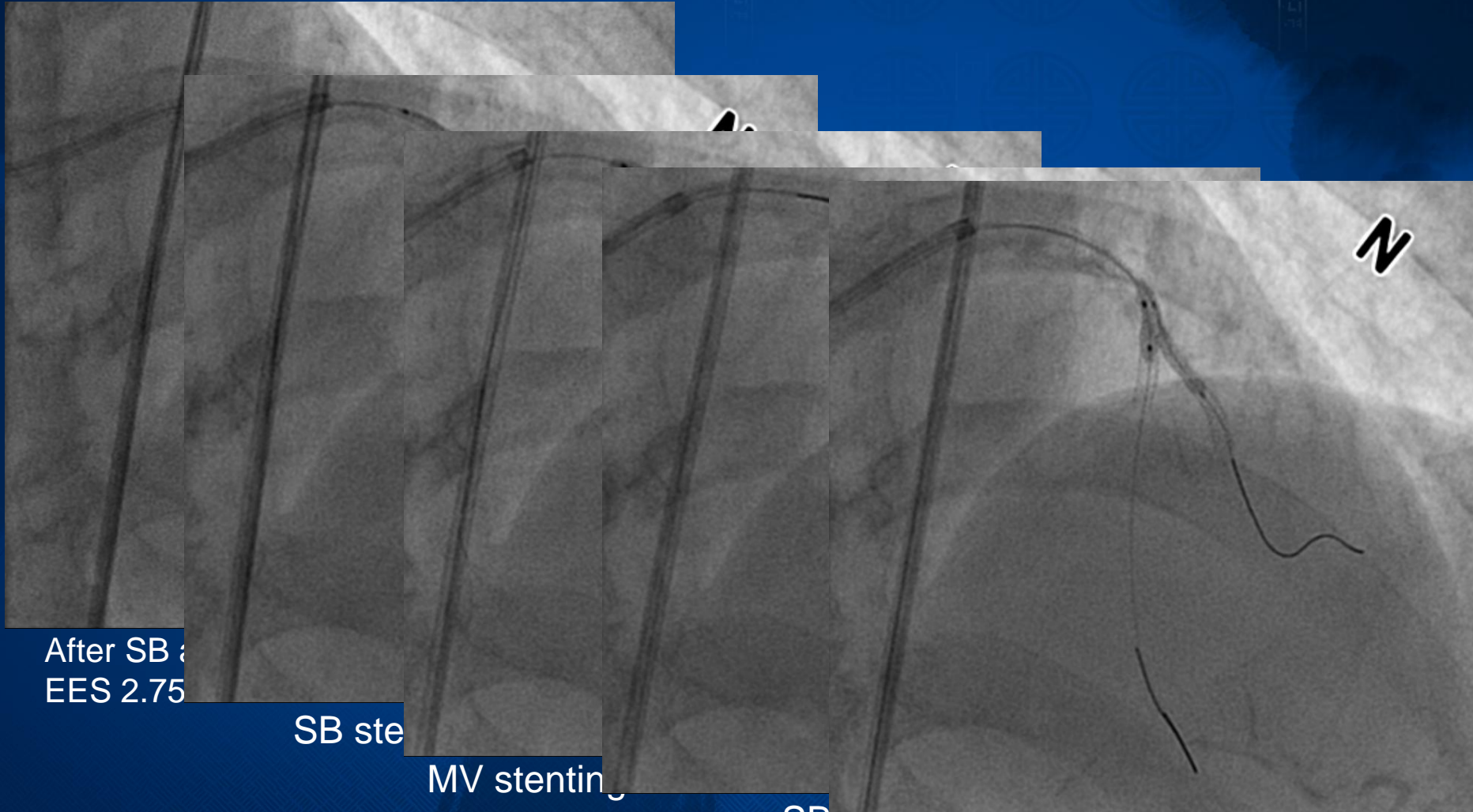
Spiral dissection in SB ostium

Cannot protect diagonal branch with wire during LAD RA



High speed RA with 1.5 mm burr at MV

Mini-Crush technique



After SB
EES 2.75

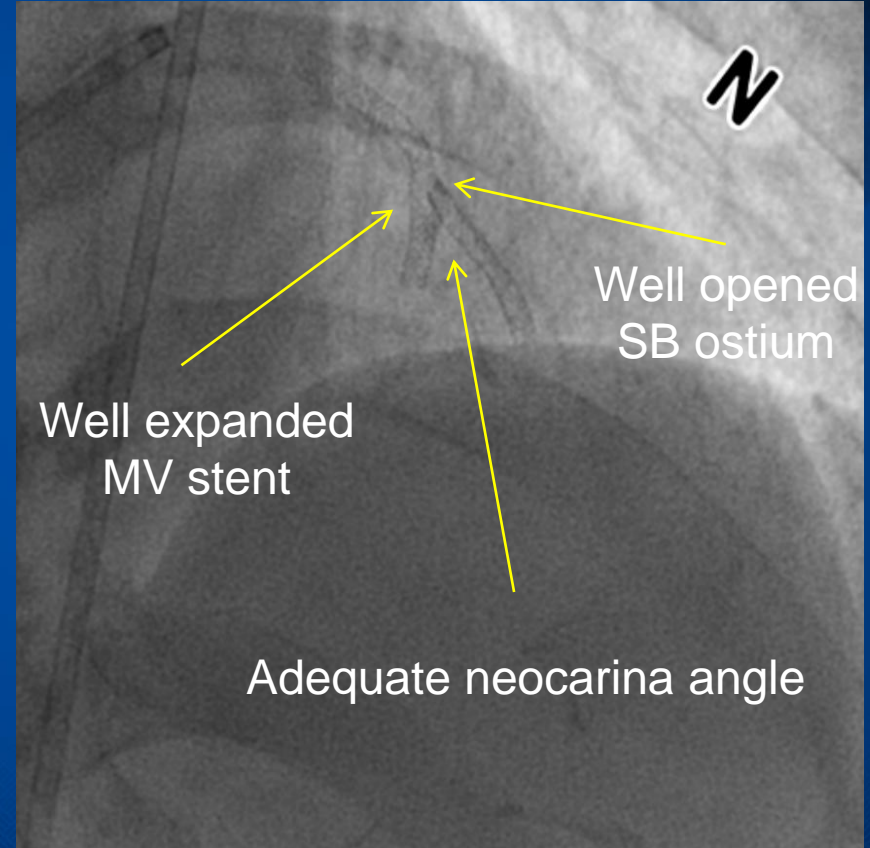
SB ste

MV stenting

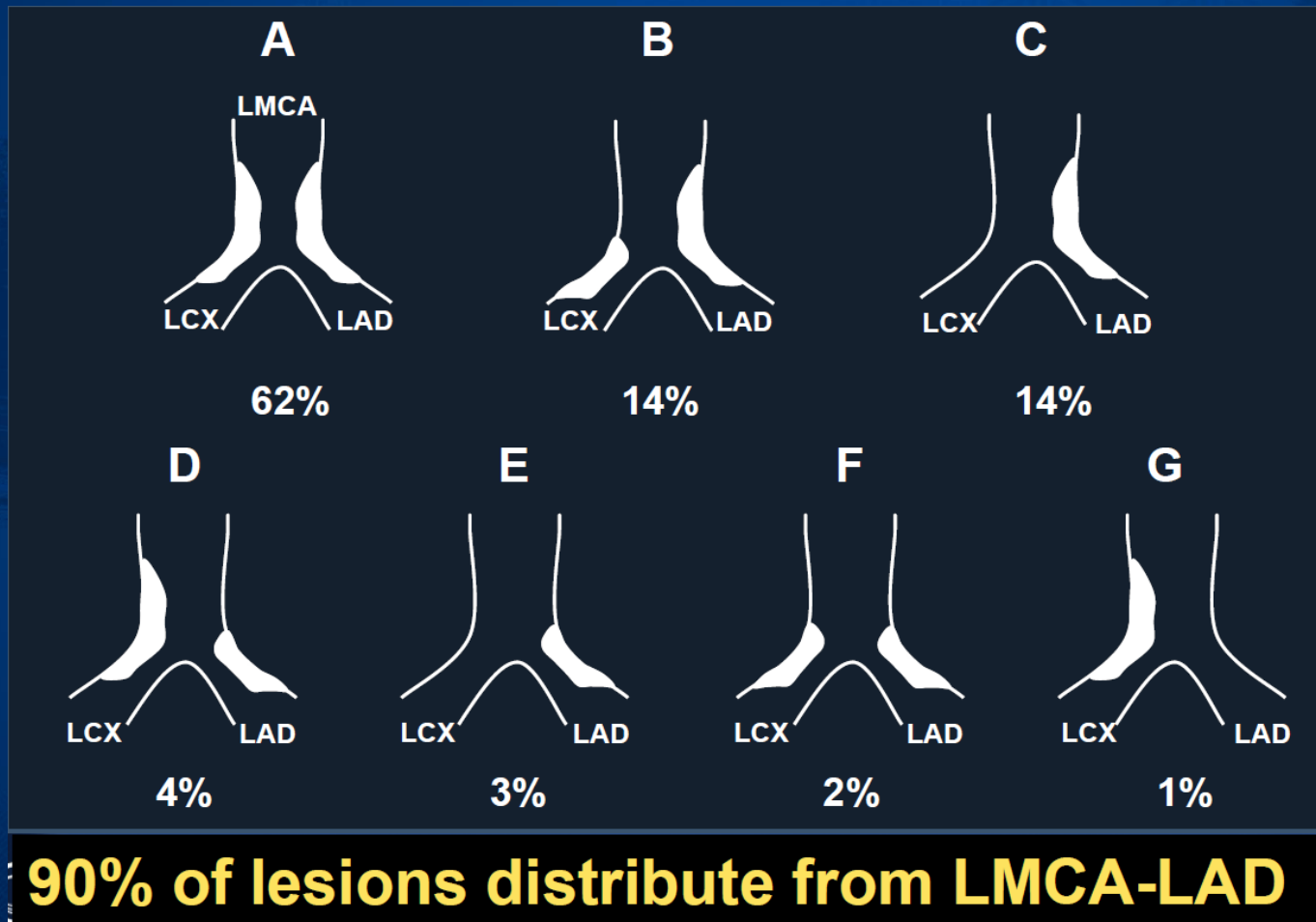
SB wire recross

FKBD with NC balloons

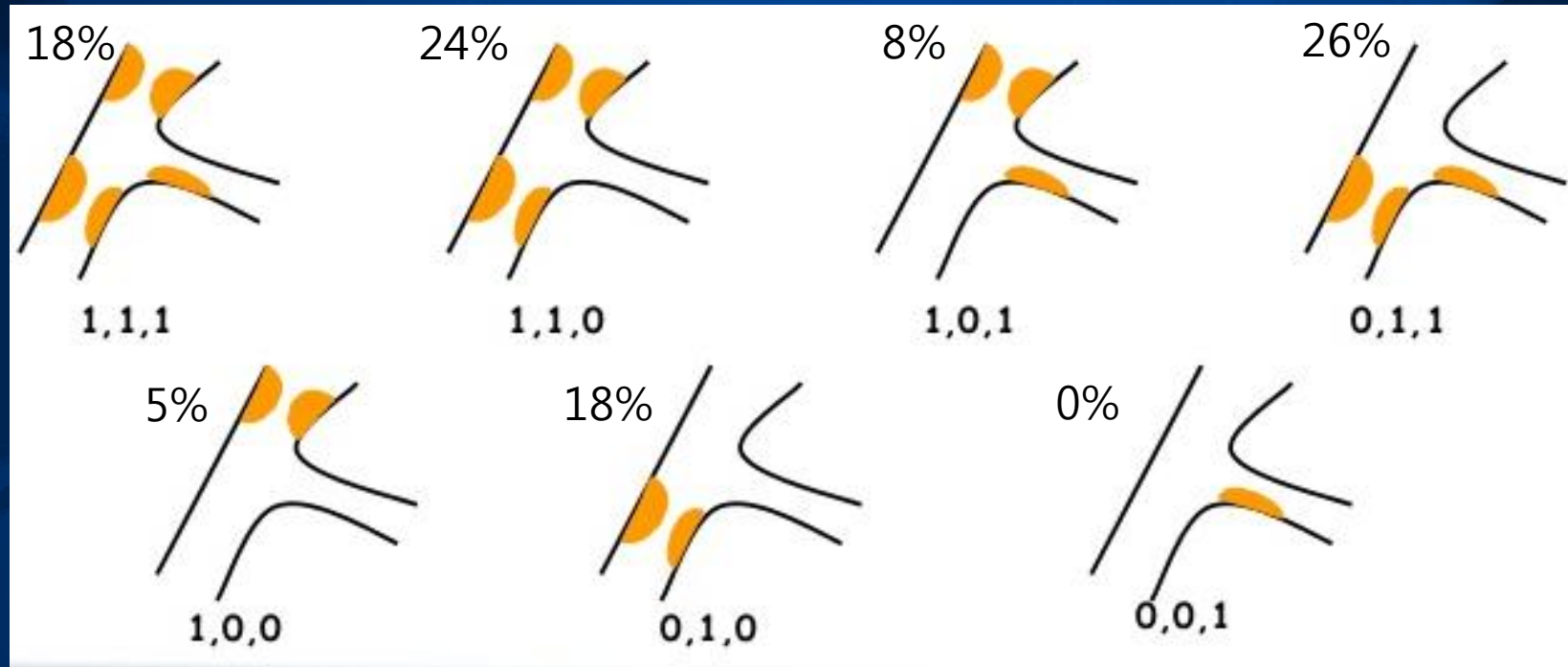
Final angiogram



Plaque distribution by IVUS (n=140)



Bifurcation lesion need RA



38 patients with bifurcation lesion among 60 patients with RA
(July 2011 ~ July 2015)

SB jail after MV RA

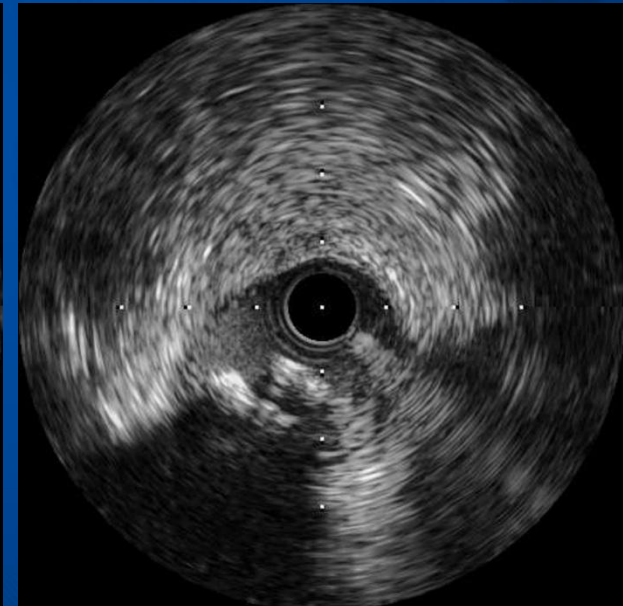
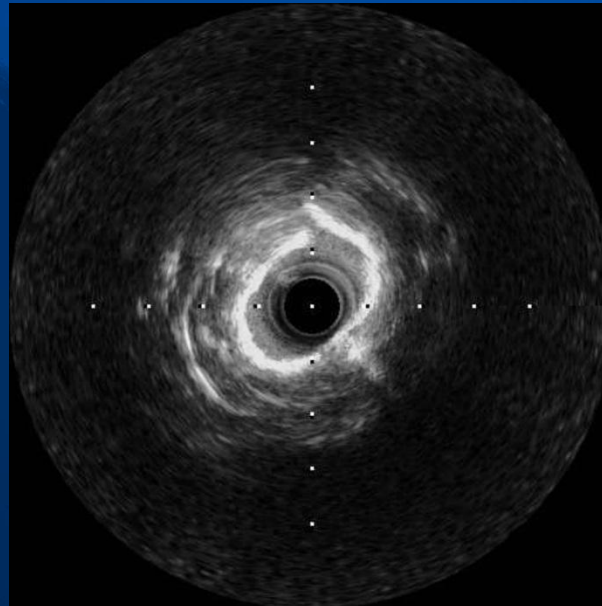
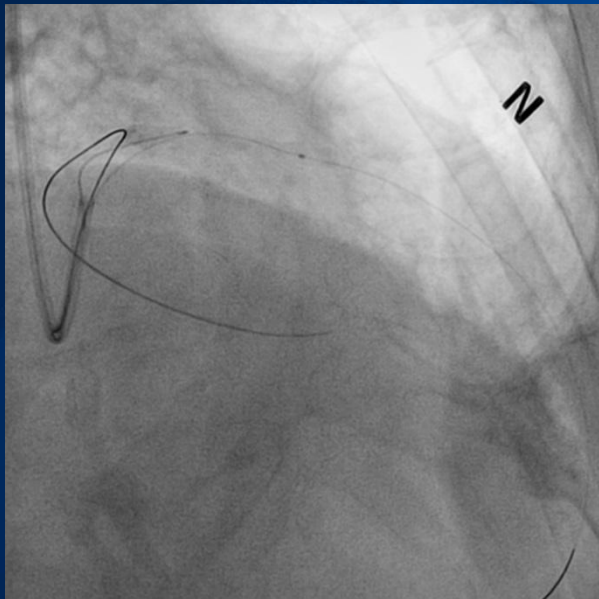
- No prediction rule
- Theoretically, plaque and carina shift of SB ostium is minimal during MV rotablation ; plaque debulking to minimize “snow plow” plaque displacement in the context of balloon dilation.
- Dissection propagating into SB ostium
- Frequent vasospasms in MV and SB after rotablation

IVUS roles in RA for TBL

- Preprocedural - RVD of MV proximal & distal, & SB ostium
- Stent apposition and expansion in MV stent prox.
 - malapposition and underexpansion are common in complex calcified lesion
- Evaluate MLA of MV and SB stent
- When complication occur, identify problem and guide treatment

IVUS roles in RA for TBL

May select some patients with high likelihood of procedural failure with only conventional angioplasty
-> Prefer elective RA



IVUS catheter cannot cross the lesion

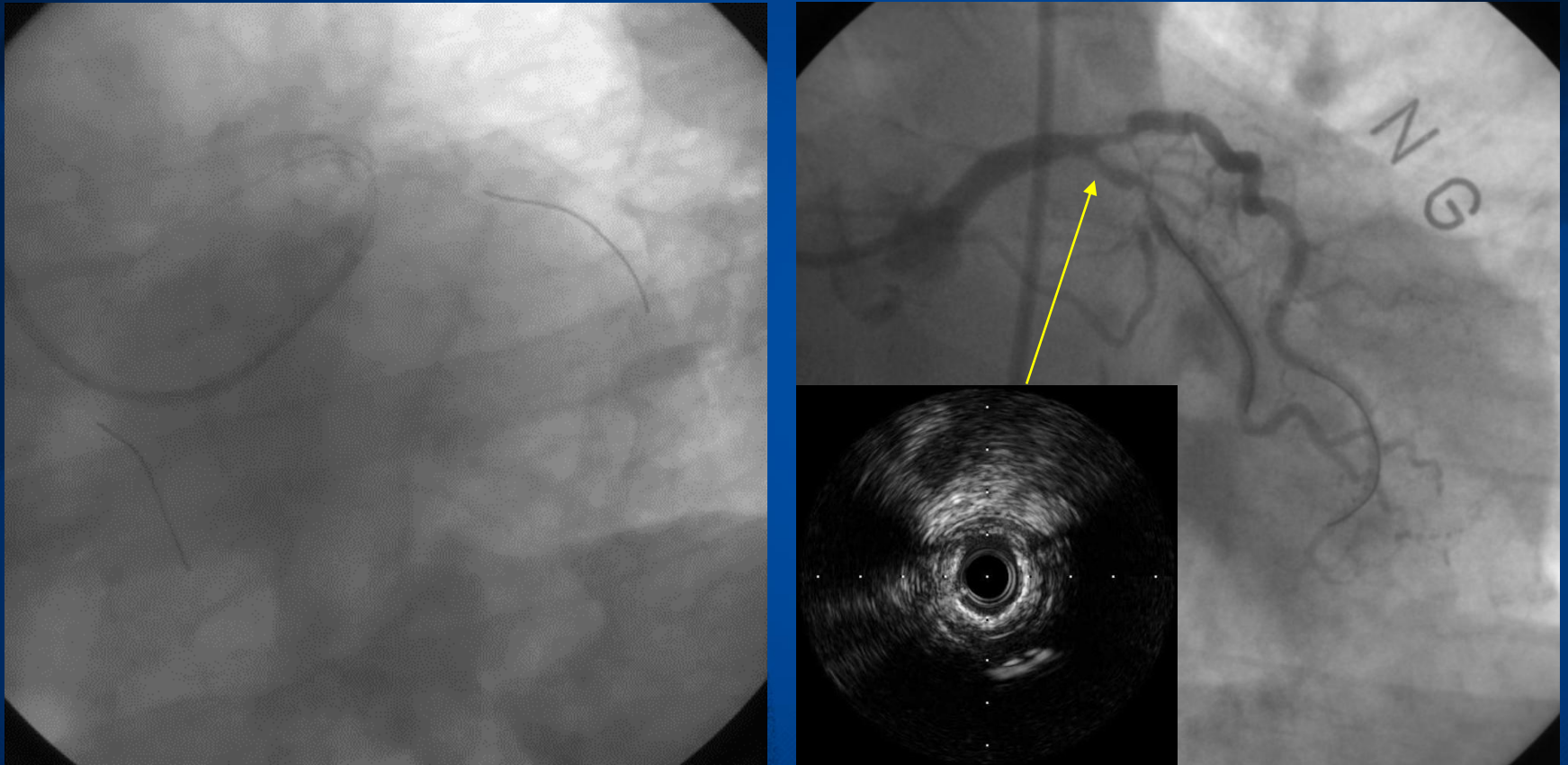
Superficial and circumferential calcium

Calcified nodule projecting toward lumen

SB Rotablation

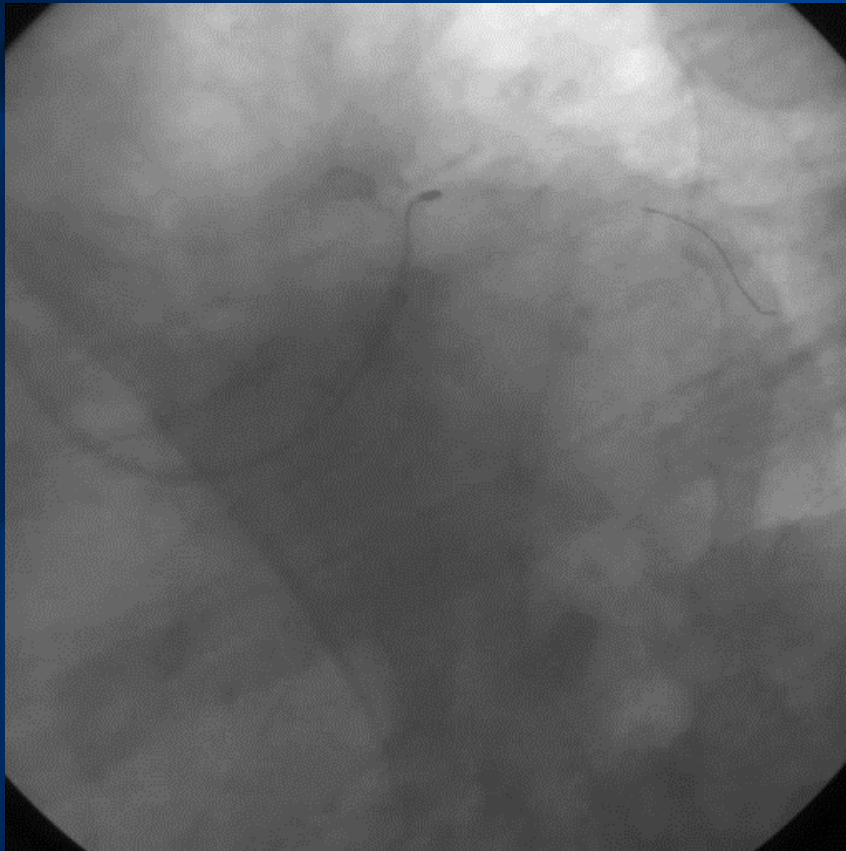
- Most important – worthy of touch or not
Subtended myocardium supply >10-12%
of LV myocardial mass
- Once RA was performed, cover the lesion
with stent
- SB ostial calcium and angulation limit delivery
of balloon or stent -> SB RA essential

76/M, Stable angina, LM bifurcation

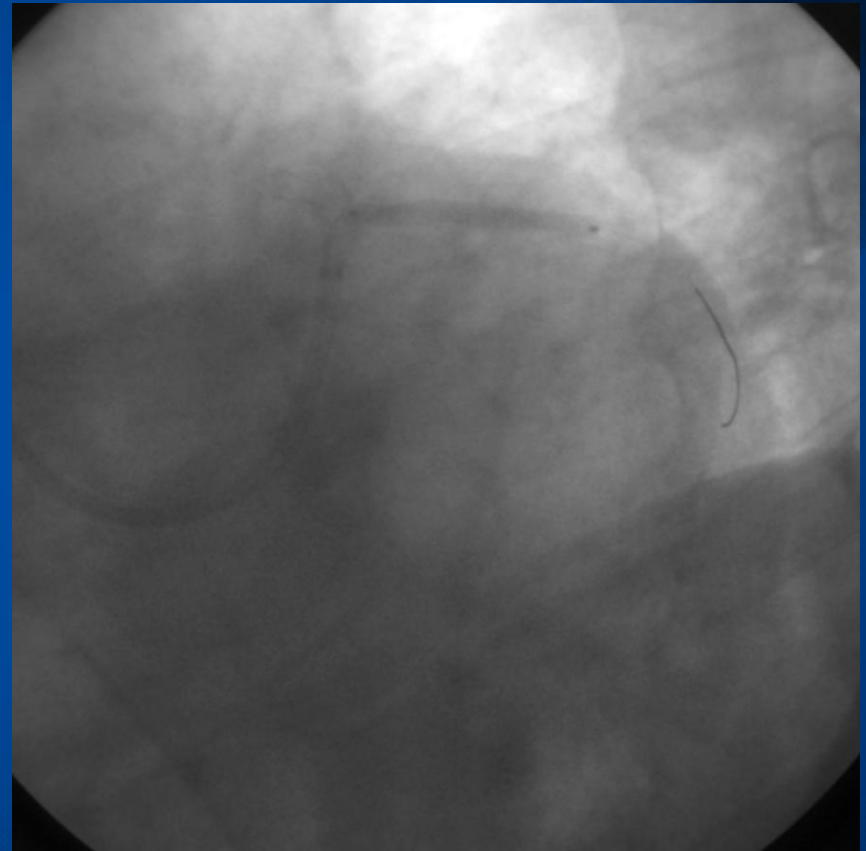


Severe angulation and subsequent highly-calcified plaque
Failure to deliver stent after NC and scoring balloonings

SB rotablation and stenting



2 runs of RA with 1.25-mm burr at LCx os



Successful stenting with EES 2.75 x 28mm

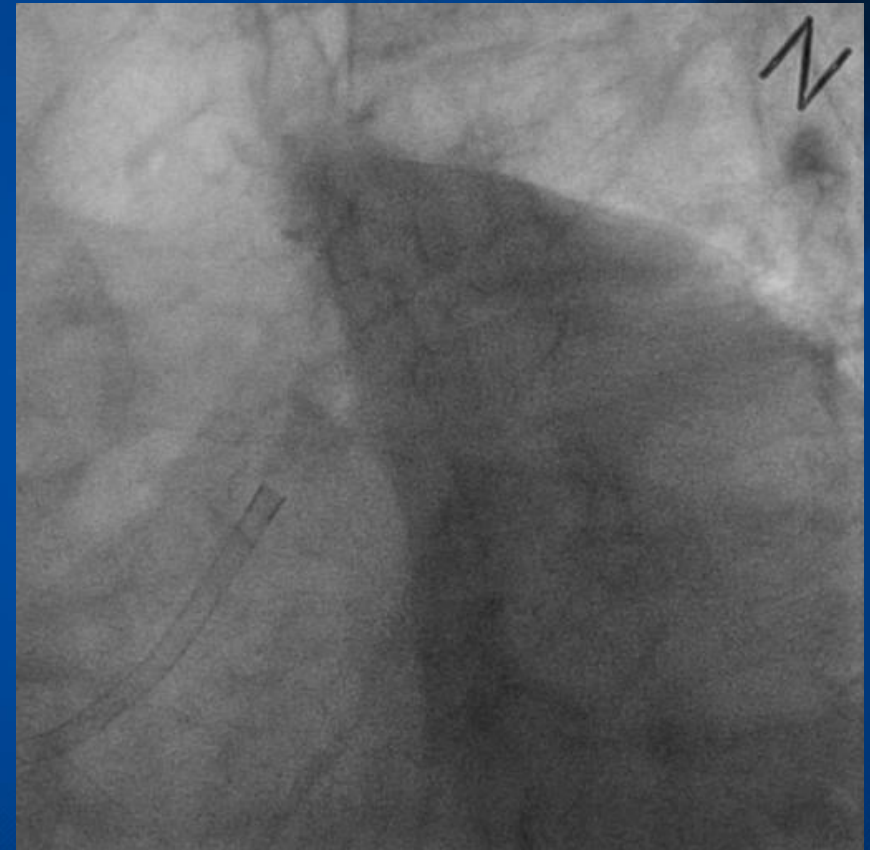
SB Rotablation

- Debulking for SB ostial calcified plaque
 - > Beneficial in stent expansion
 - > No evidence of clinical benefit

RA for LM true bifurcation

- Most challenging area in interventional field
- Higher rate in need of two stent technique
- No reflow phenomenon usually catastrophic result.

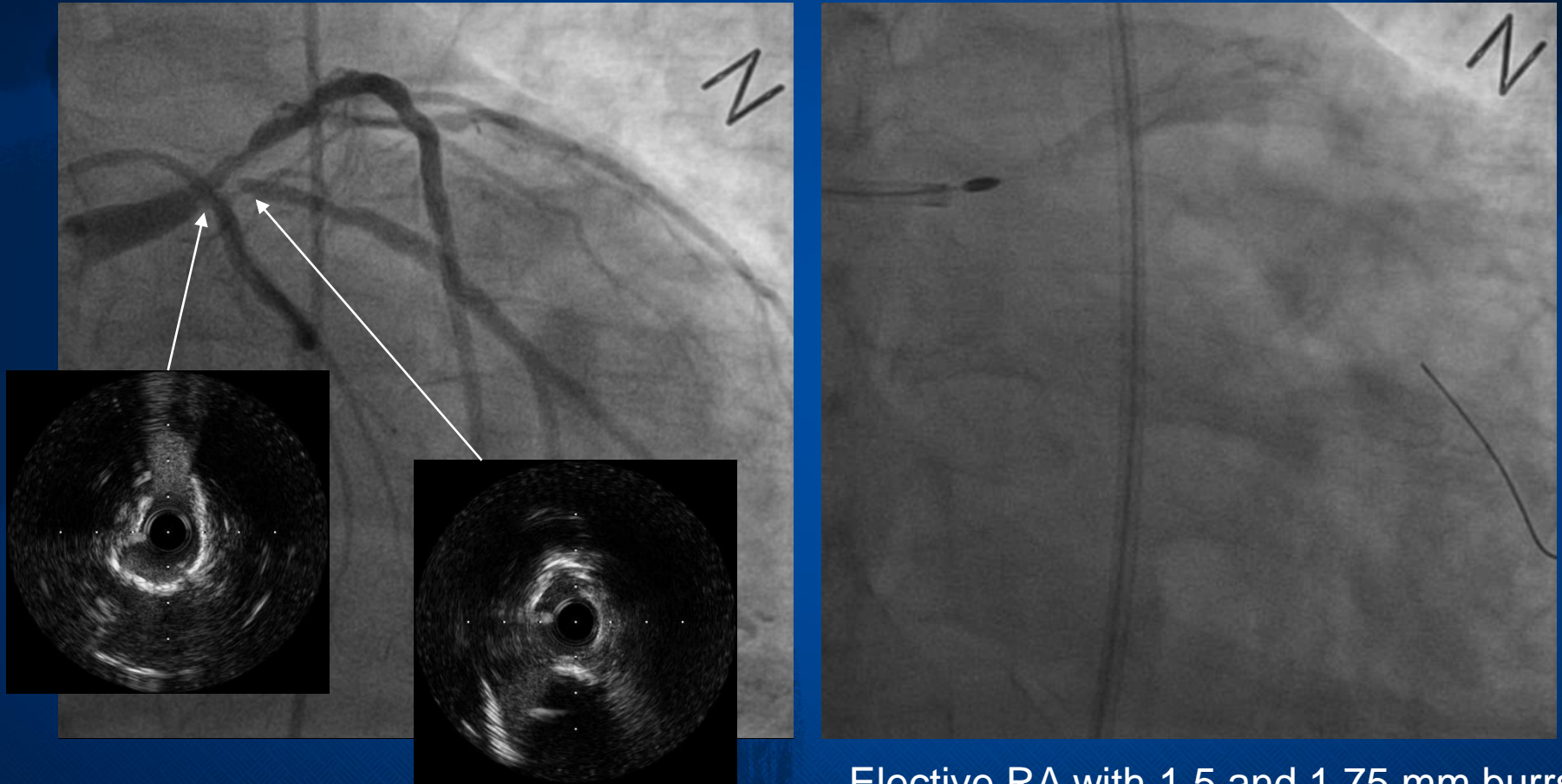
M/73, NSTEMI with preserved LVEF Refuse bypass surgery, ESRD on HD



Focal 90% stenosis in pLAD
segmental 90% stenosis D1 os-prox

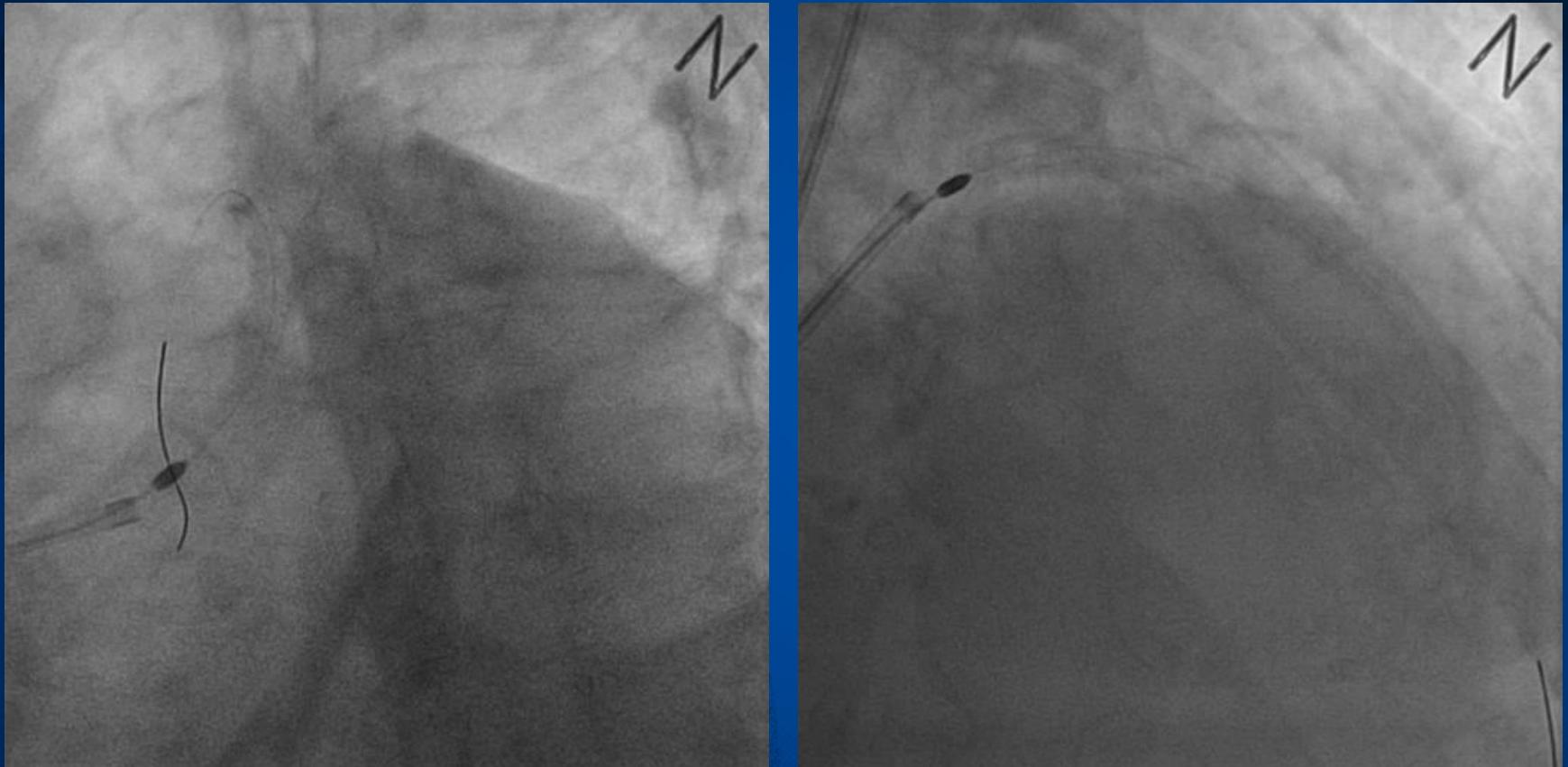
Medina 1,1,1- typed
heavy calcified LM trifurcation lesion

Elective rotablation for RI os-prox

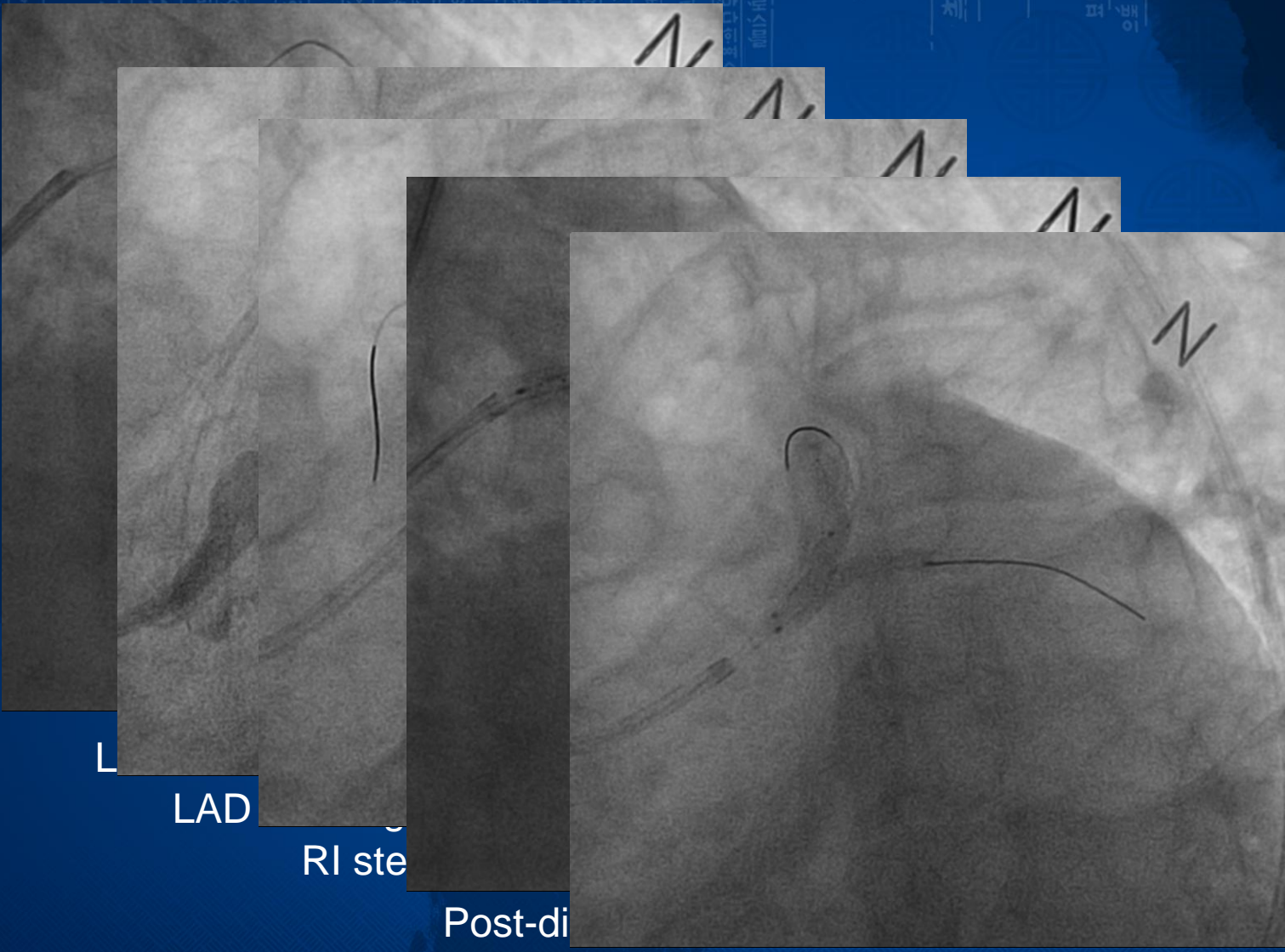


Elective RA with 1.5 and 1.75 mm burrs

Elective rotablation for LAD os-mid



RA with 1.75 mm burr after POBA with 2.5mm NC balloon



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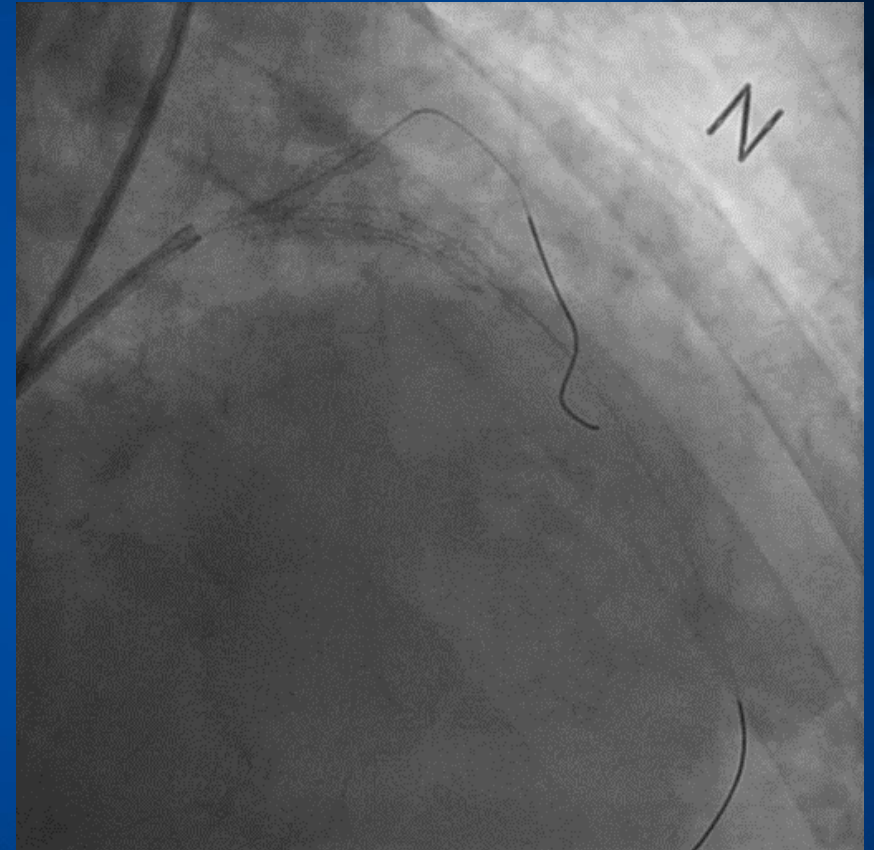
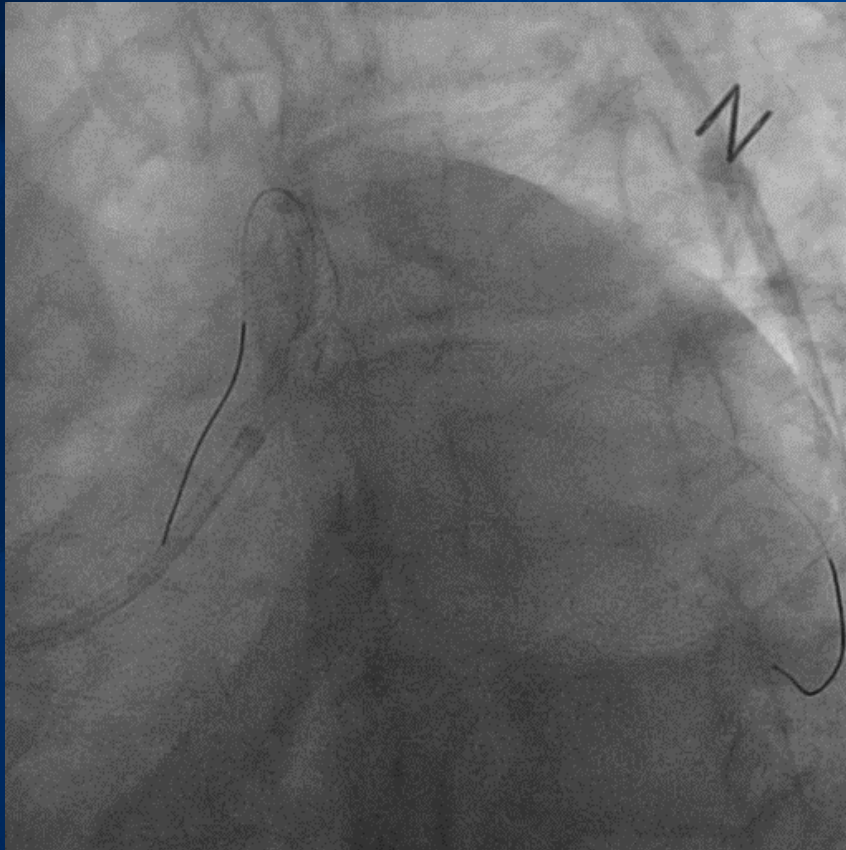
LAD

RI ste

Post-di

FKBD with 3.5 and 3.0mm balloons

Final angiogram



TIMI 3 flow and well-dilated LAD and RI lesion
LCx compromise without chest pain or dyspnea

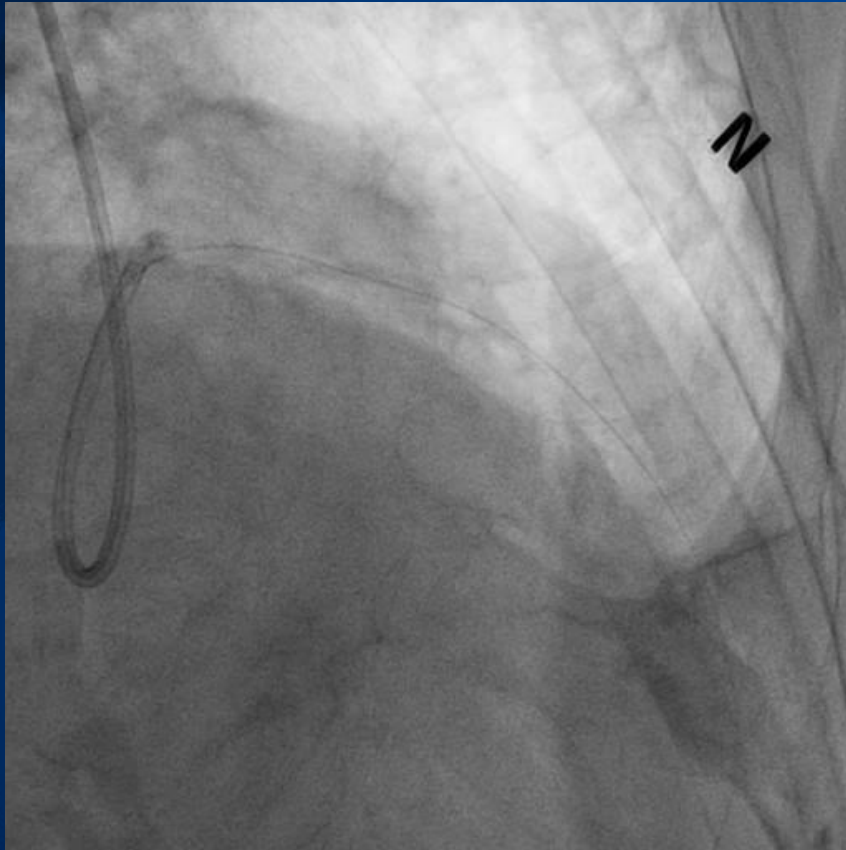
M/78, NSTEMI with LVEF 25-30%, Killip 2 Refuse bypass surgery, referred for PCI



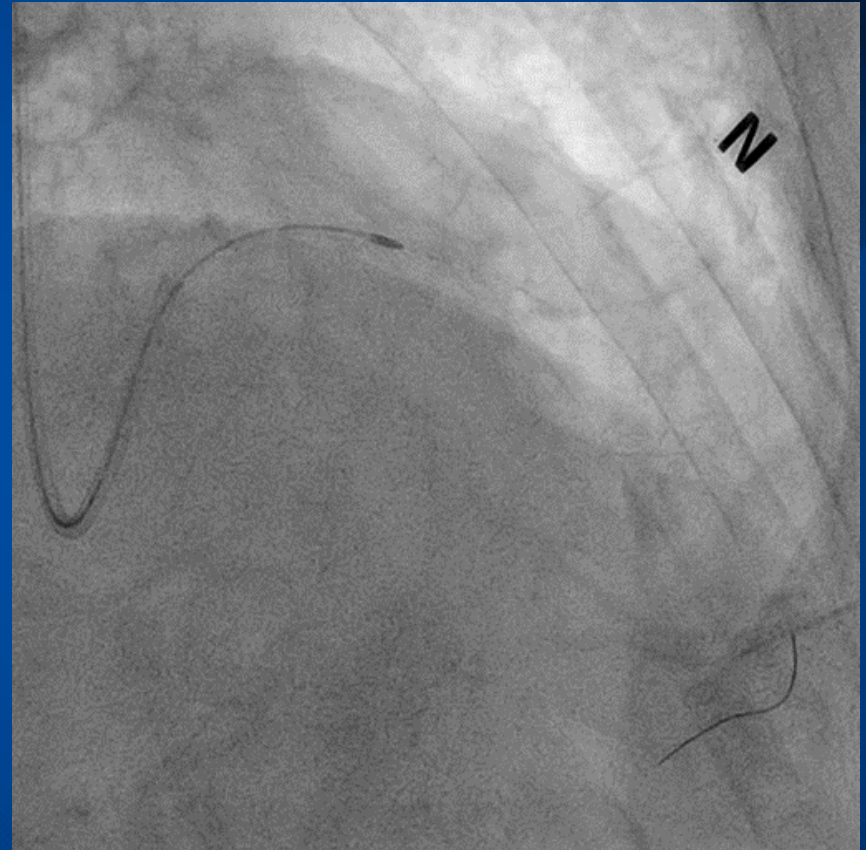
Severe calcified lesion involve LM bifurcation

Diffuse long LAD lesions and near total occlusion in ostium of LCx

Diffuse long calcified lesion LAD os-distal

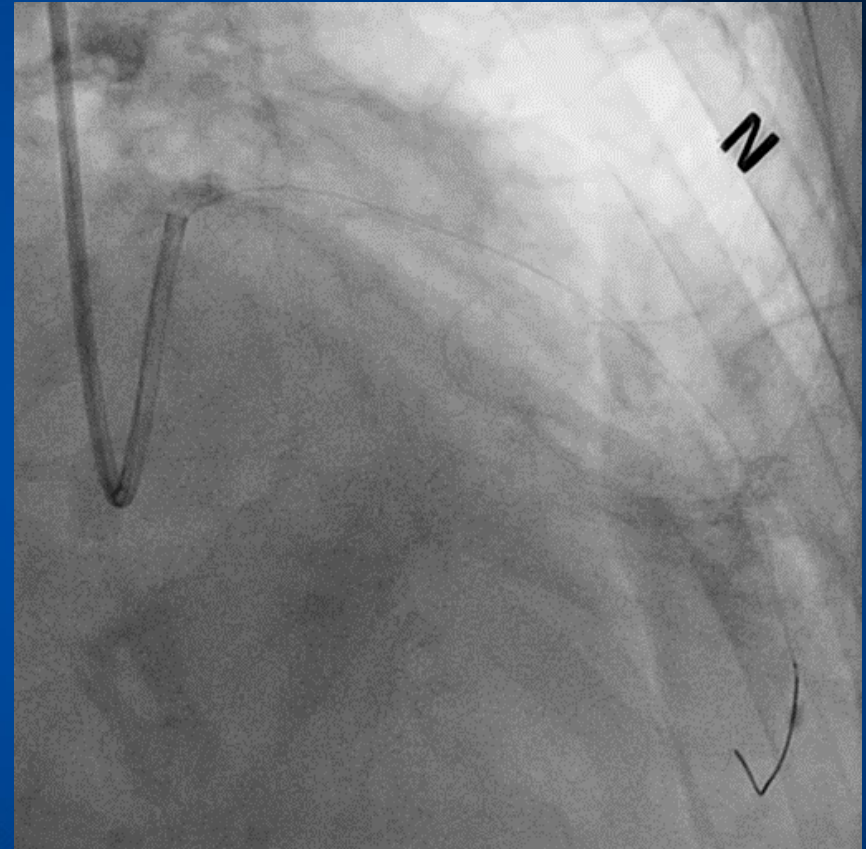
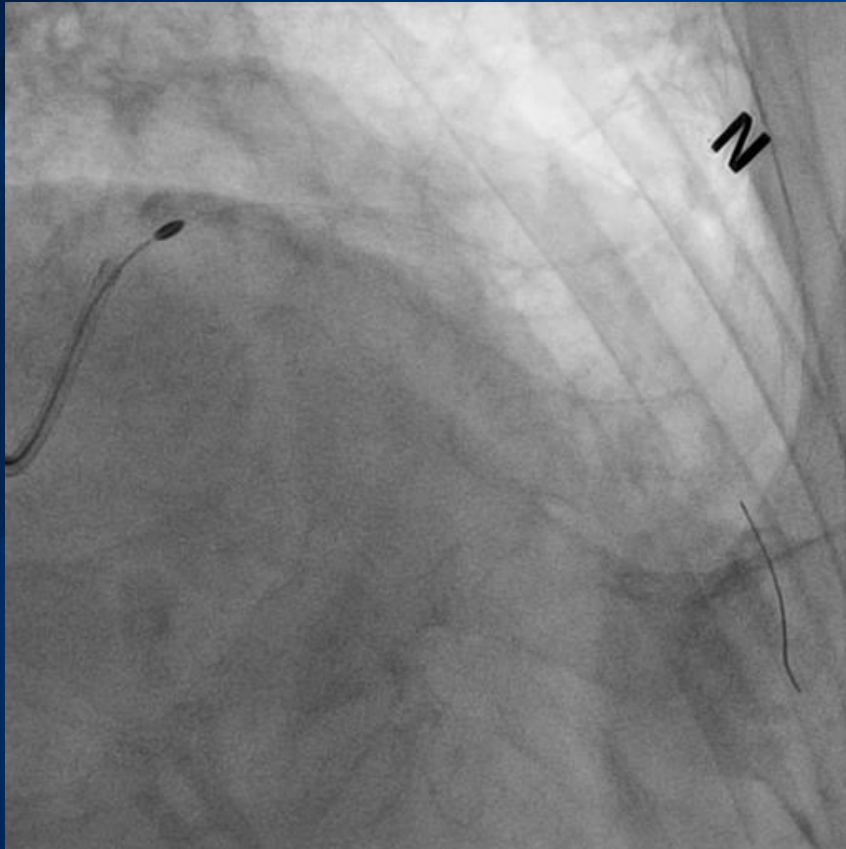


7Fr XB 3.5 with side hole

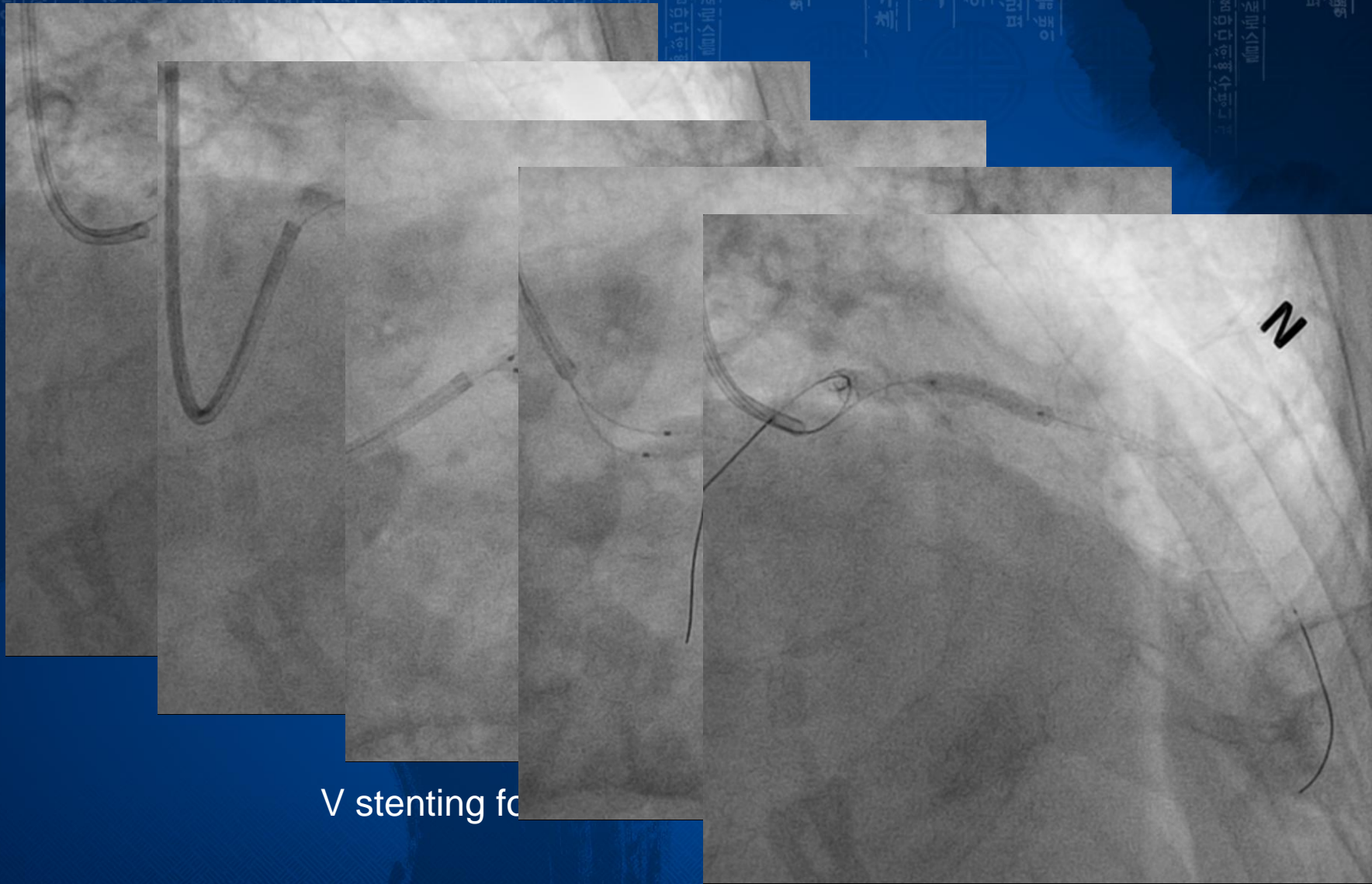


After POBA for LCx os
Elective RA with 1.25 mm burr

Polish run with 1.75 burr



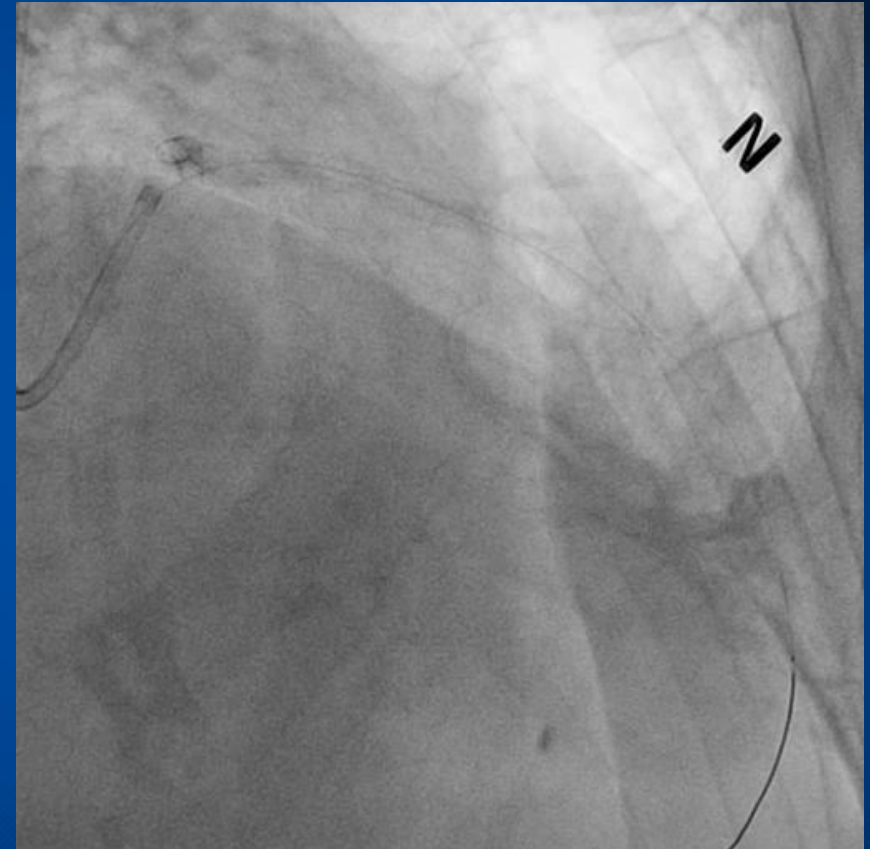
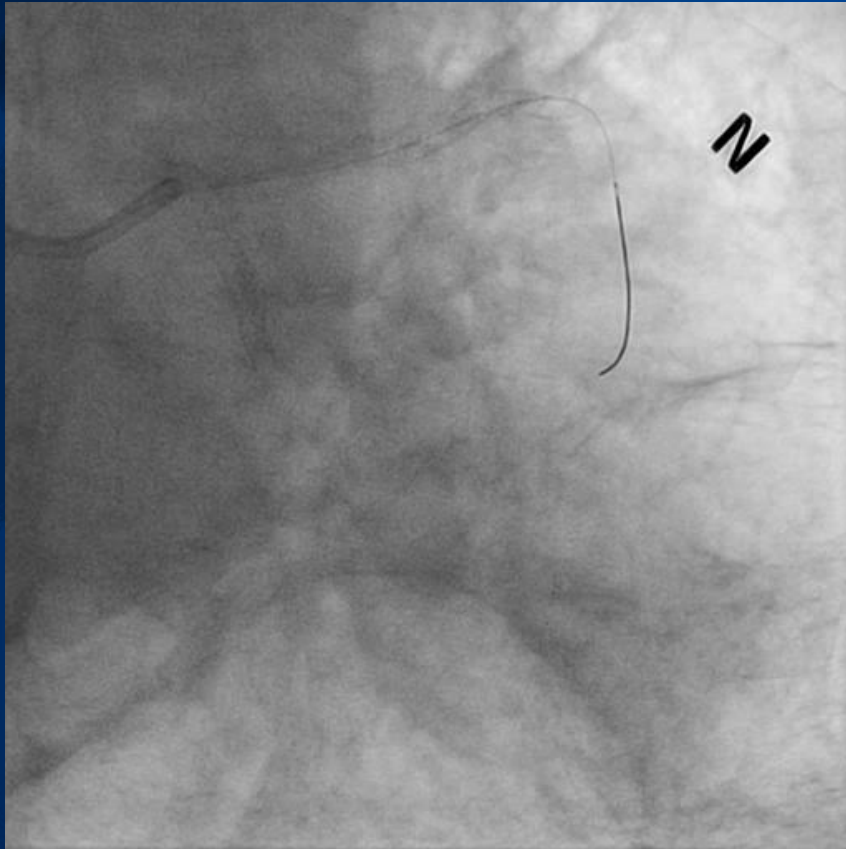
Neither ST elevation nor hemodynamic instability
except dyspnea aggravation for a while



V stenting fo

Post-dilation with NC balllon

Final angiogram



TIMI 3 flow without SB compromise through both LAD and LCx

RA for LM true bifurcation-Tips

- Use 7 or 8Fr guiding catheter with side-hole
- Closed monitoring of precordial leads during whole procedure
- Effective rotablation for short period with experienced hands and skillful assist
- Maintain high speed without decelerations >5,000 rpm.
- Stand-by of ventricular support device
- Intermittent rests of rotablation to prevent prolonged blockage of coronary flow by device
- Confirm coronary blood flow as soon as possible after RA
- Frequent observe patient during procedure

Conclusion

- Rotational atherectomy is effective treatment strategy to enhance procedural success and reduce stent under-expansion in PCI for complex calcified true bifurcation lesion.
- The need of PCI for that lesions is increasing in extremely old age.
- We should be ready to perform PCI with rotational atherectomy in those patients who are high risk for, or refuse bypass surgery.