

Overcoming Bifurcation Stenting Challenges

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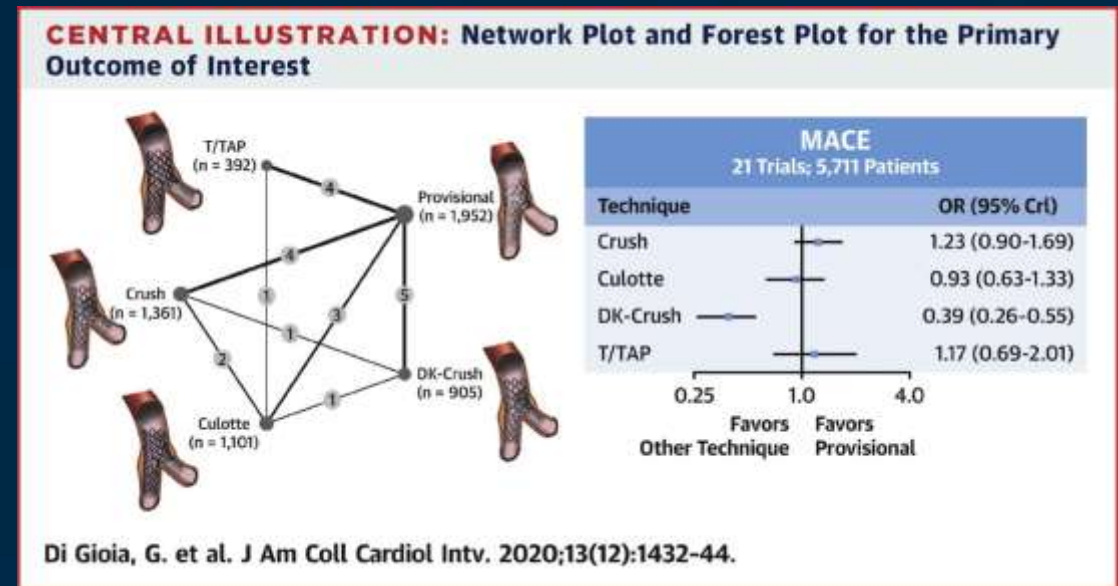
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- I, **HA WOOK PARK**, DO NOT HAVE A FINANTIAL INTEREST/ARRANGEMENT OR AFFLIATION WITH ONE OR MORE ORGANIZATIONS THAT COULD BE PRECEIVED AS A REAL OR APPARENT CONFLICT OF INTEREST IN THE CONTEXT OF THE SUBJECT OF THIS PRESENTATION.

Bifurcation Coronary disease

- 20% of PCI patients ⁽¹⁾
- DES enhanced success rate, but have not resolved completely
- Dependable strategy – no established
 - Rare studies evaluating anatomical intricacies
 - Lack of large RCT
 - Many anatomical variants
- DK crush > PS or Culotte ^{(2), (3), (4)}
→ **Single technique can't fil all**

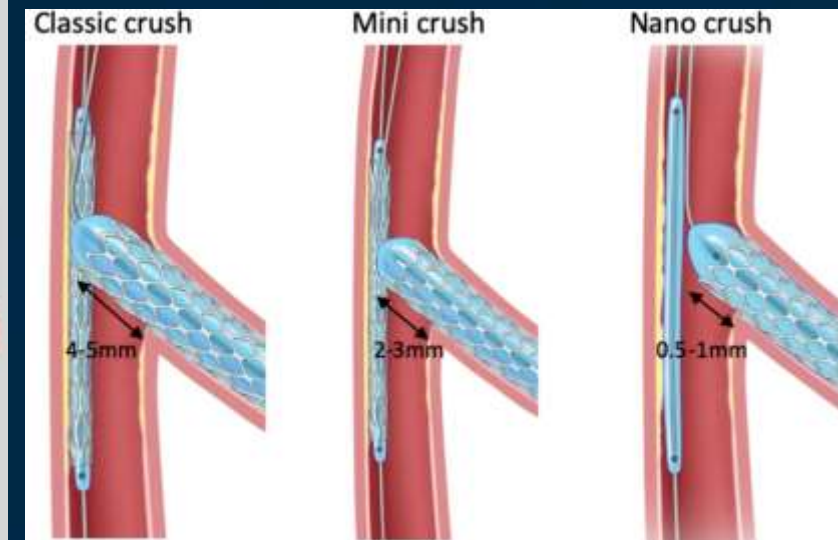
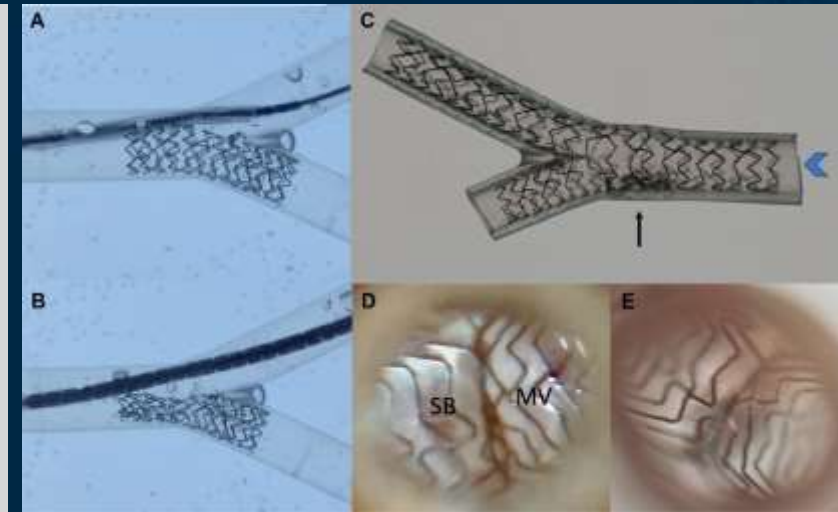
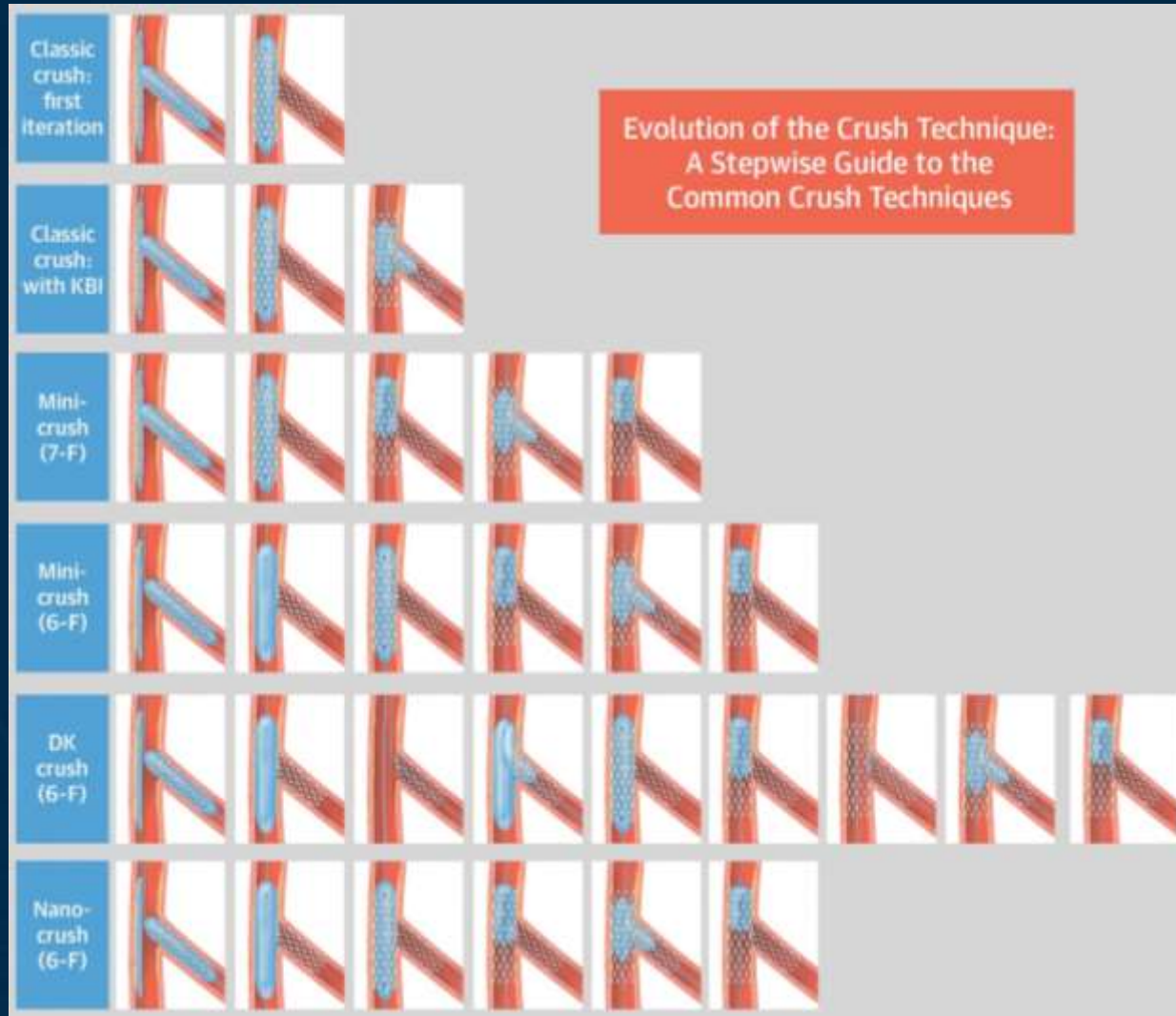
1> Serruys P.W. et al. J Am Coll Cardiol 2010;55:1093-1101.
2> Zhang J.-J. et al. Eur Heart J 2020;41:2523-2536.
3> Chen S.-L. et al. J Am Coll Cardiol 2017;70:2605-2617.
2> Chen S.-L. et al. J Am Coll Cardiol Intv 2015;8:1335-1342.



Difficulties of Bifurcation PCI

- Risk of peri-procedural complications
- Relatively high restenosis
- Not all lesions are the same
 - Size of vessels (Meaningful SB size $\geq 2.25\text{mm}$)
 - Variable plaque distribution
 - Extent of SB disease
 - Variable angulation
- Higher risk of stent thrombosis
- Short procedure time and Tailored stenting strategy is very important.
 - **Balloon catheter performance is important to effectively treat bifurcation lesions and minimize the risk of complications**

Crush Technique for Bifurcation Stenting



Ryurei™ PTCA Dilatation Catheter

- **Characteristics – *Superior deliverability***

- **Pushability**

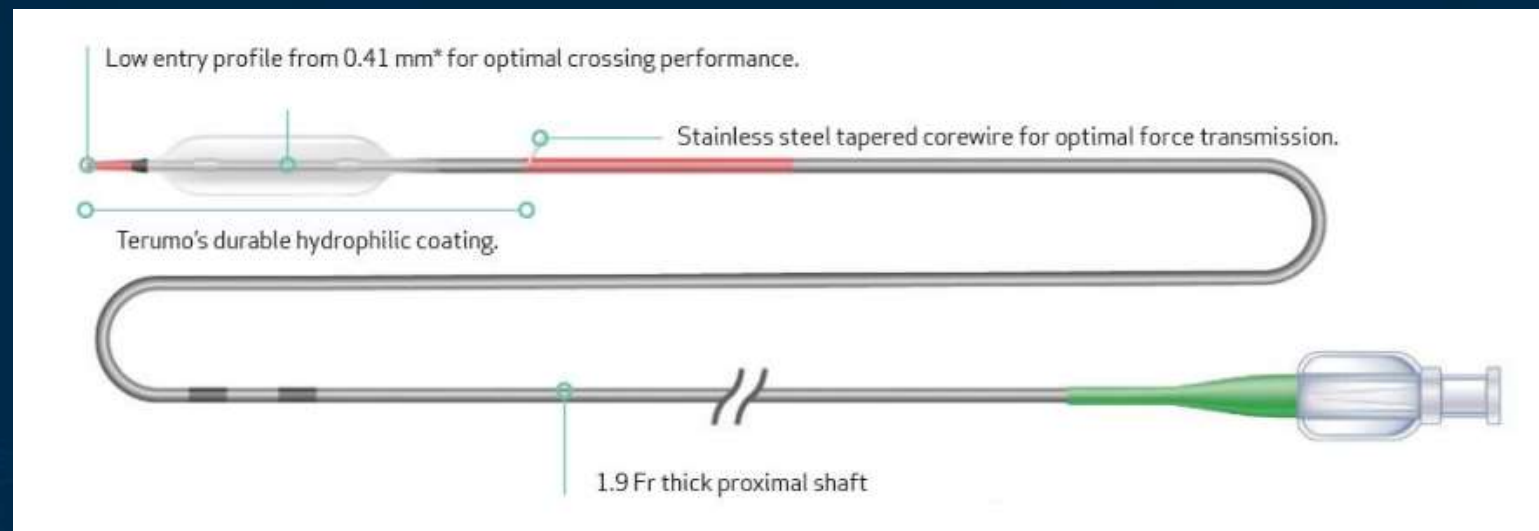
- The combination of a flexible distal part, tapered corewire on the midshaft and the thick proximal hypotube

- **Crossability**

- A combination of distal low profiles and the Terumo hydrophilic M-Coating

- **Trackability**

- New tip design and improved balloon bonding

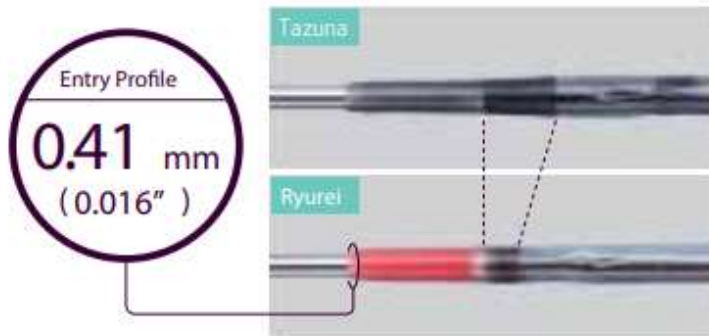


Ryurei™ PTCA Dilatation Catheter

Taking on the challenge of complicated lesions

Tip

- A small entry profile of 0.41 mm
Like Tazuna, the tip is made of a flexible material.



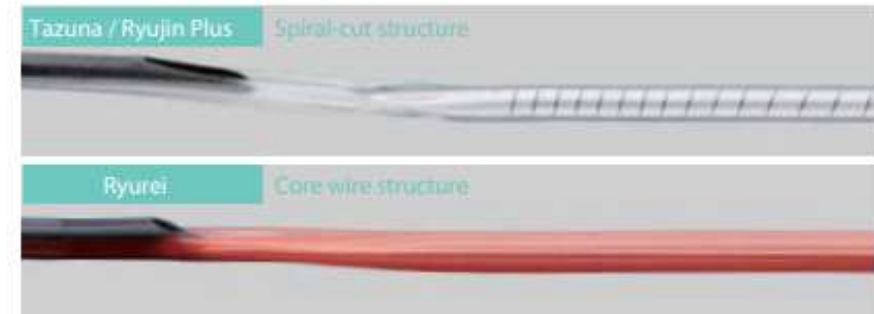
Balloon

- 1.00 mm—
the smallest diameter* for a balloon
A 1.00-mm diameter balloon is included in the lineup, facilitating manipulation in severely stenotic lesions.
*Among Terumo balloons (as of February 2018)
- Re-wrappable structure
Three pleats
Diameter 2.25–4.00 mm



Shaft

- Core wire structure
The conventional spiral-cut structure used from the proximal end to the tip of the shaft in existing balloons was re-engineered, switching to a core wire structure.



2005

2009

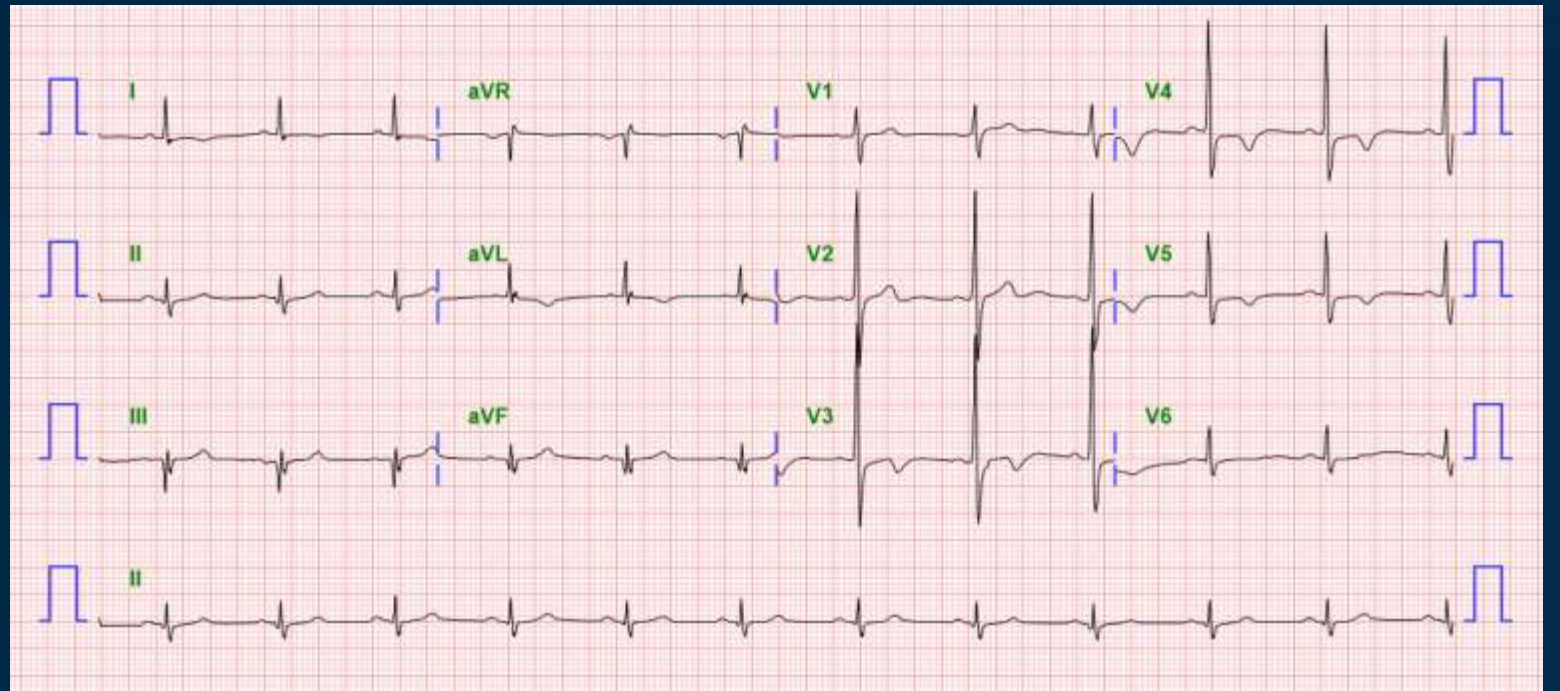
2018

Case

Case 1

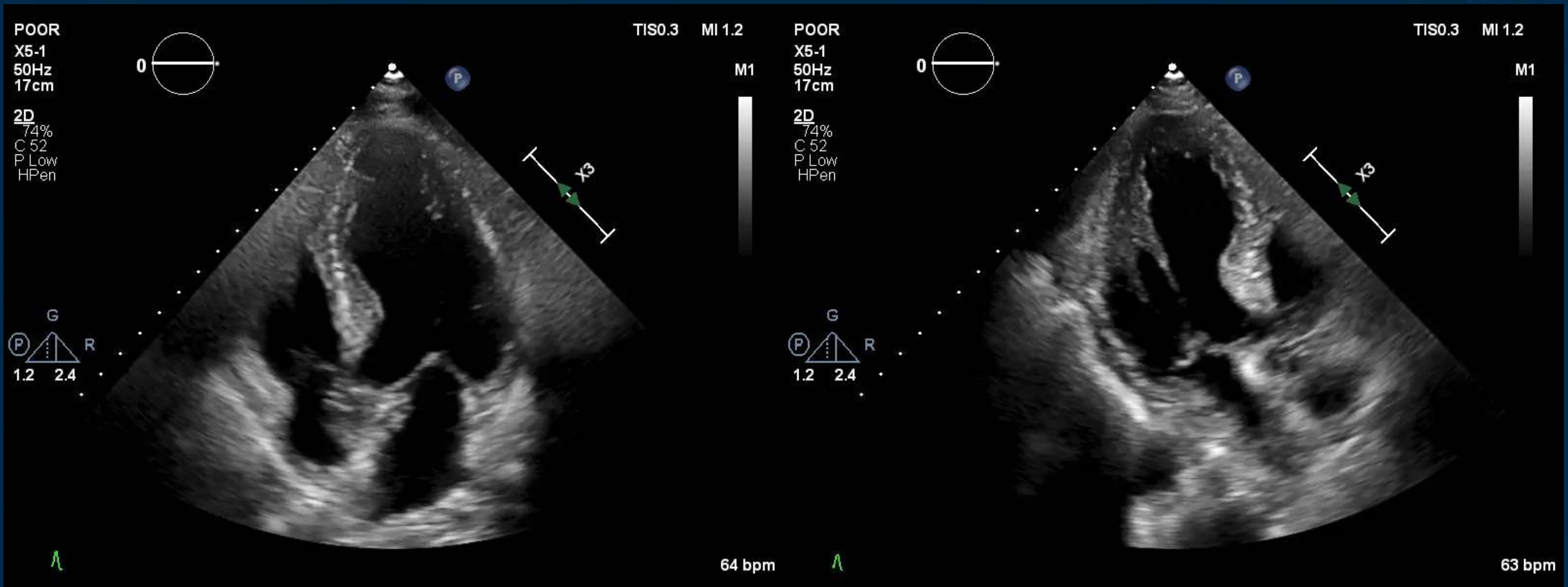
71/M Exertional dyspnea

- C/C : Exertional dyspnea for 1 months
- P/Hx : HBP, DL
- TMT : Strong Positive at Stage 3



Case 1

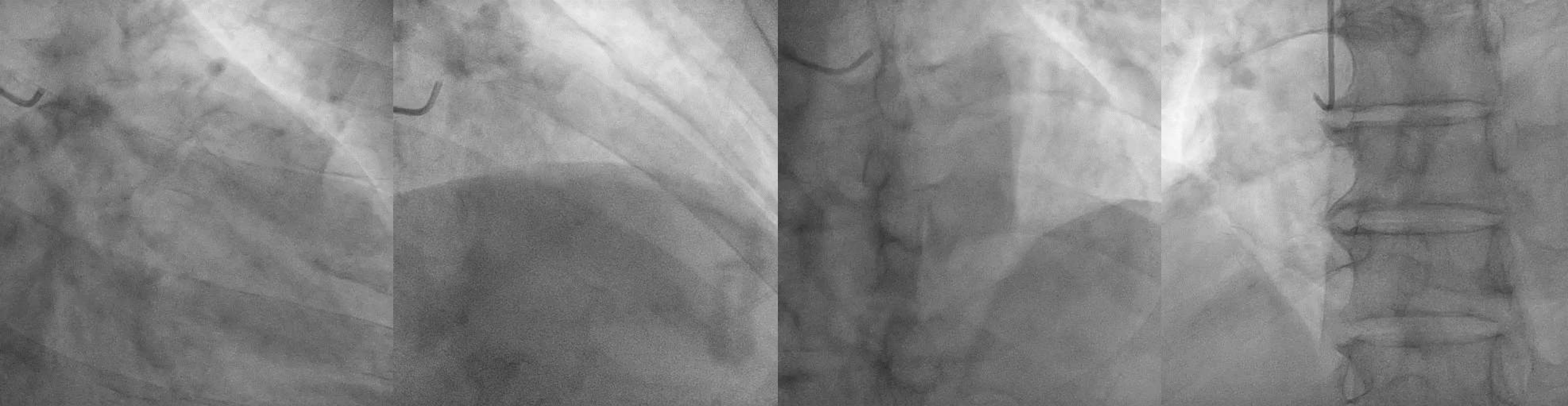
71/M Exertional dyspnea



- Preserved LVEF : 53~55%
- Akinesia with thinning of basal to mid inferolateral, anterolateral walls of LV
Focal akinesia of apical inferior, apical cap of LV
→ Suggestive of ischemic insult in LCX, and LAD territory

Case 1

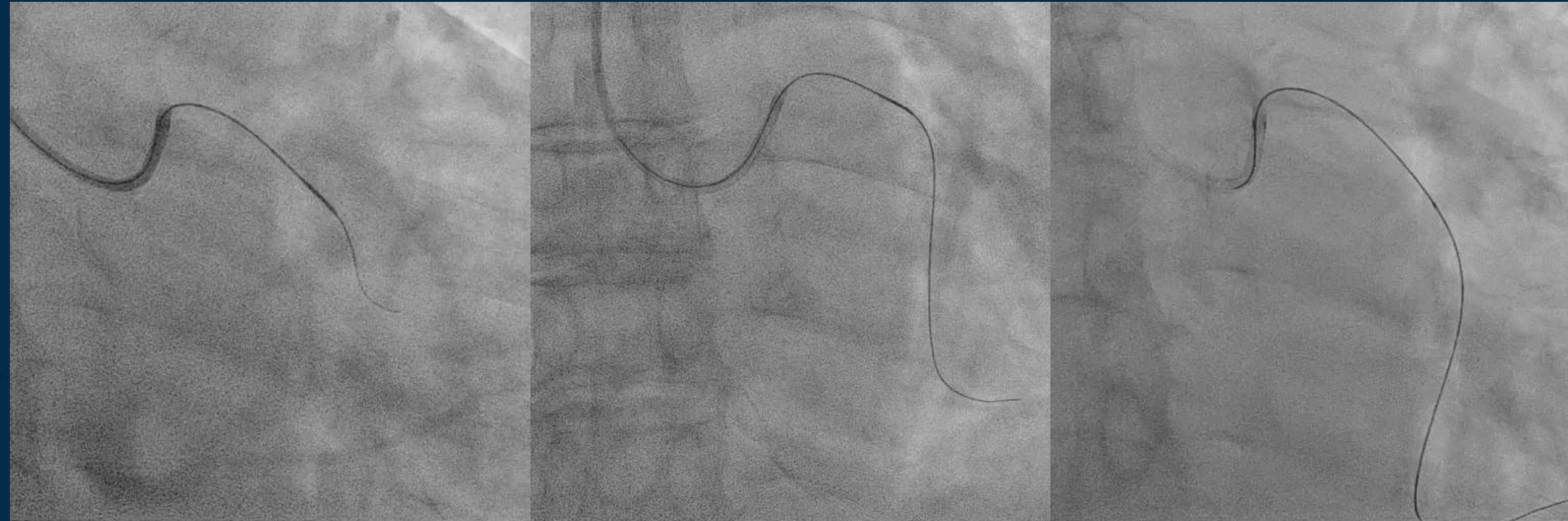
71/M Stable angina



- Recommend CABG : Pt. refuse
- PCI for LCX CTO and LAD/Dg bifurcation

Case 1

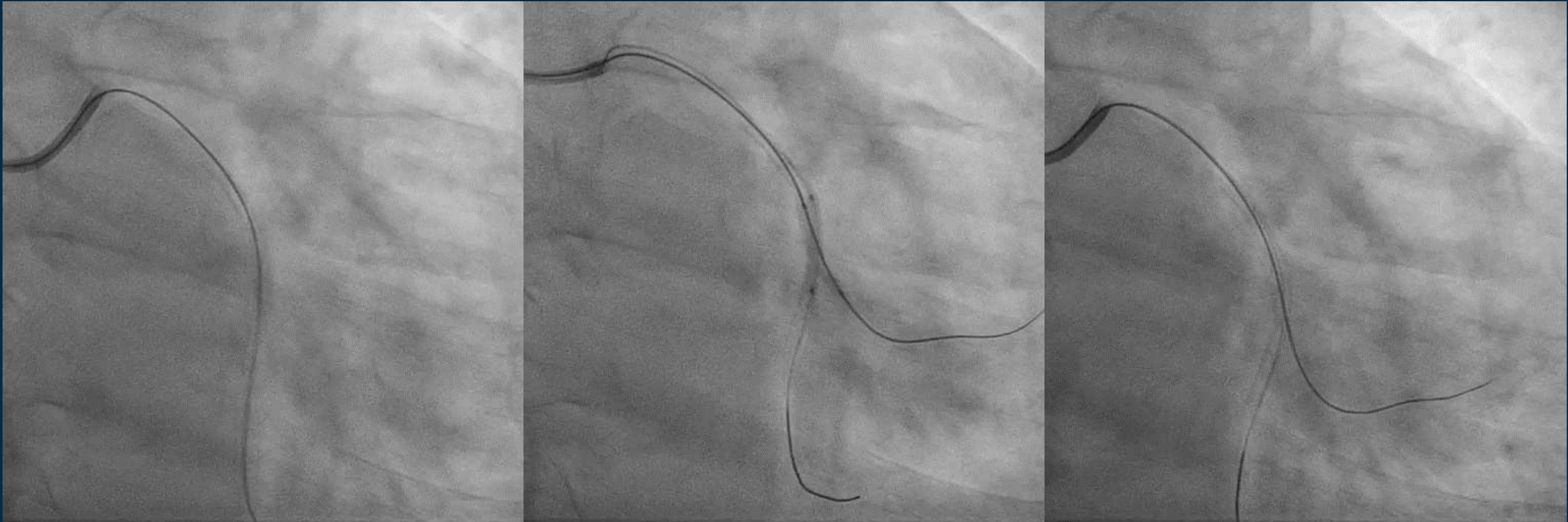
71/M SA, 3VD



- Rt. Radial approach
 - GC : 6Fr EBU3.5
- Turnpike LP + Fielder XT → Microcatheter crossing fail
- Pre-dil : IKAZUCHI Zero 1.0*6 mm, Ryurei 2.0*15mm

Case 1

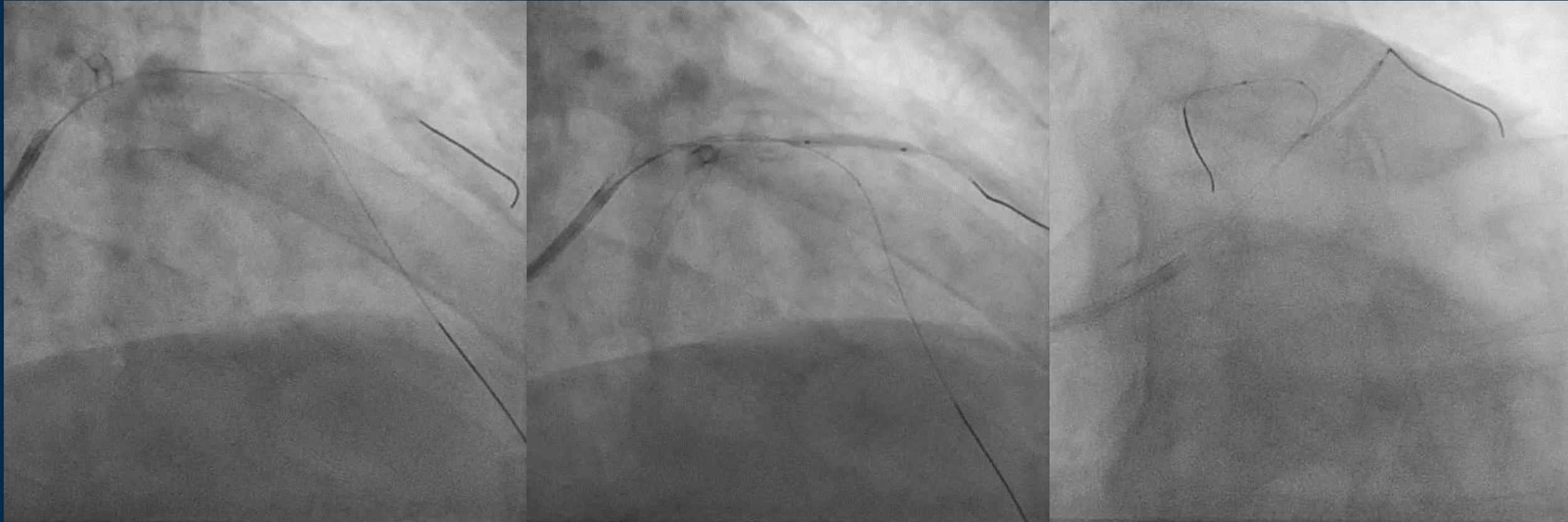
71/M SA, 3VD, PCI for LCX CTO



- LCX : Ultimaster Tansei 2.5*38mm
 - Wiring to OM by Fielder XT
- FKB : Accuforce NC 2.5*15 + Ryurei 2.0*15

Case 1

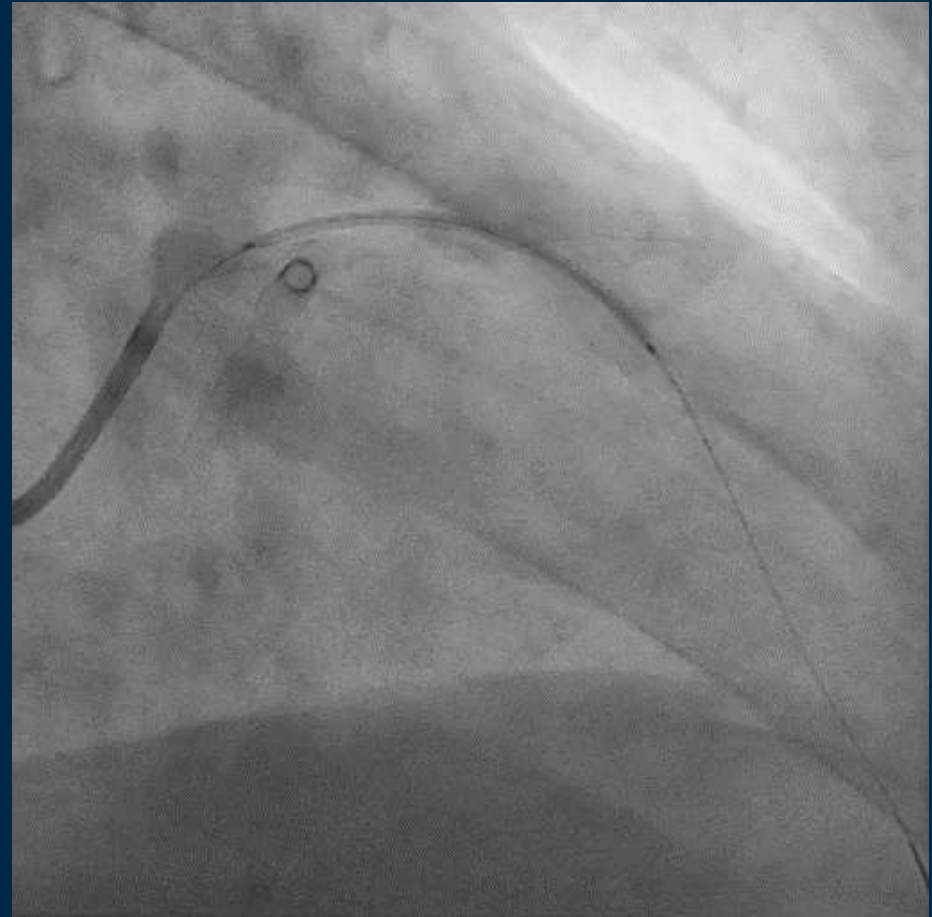
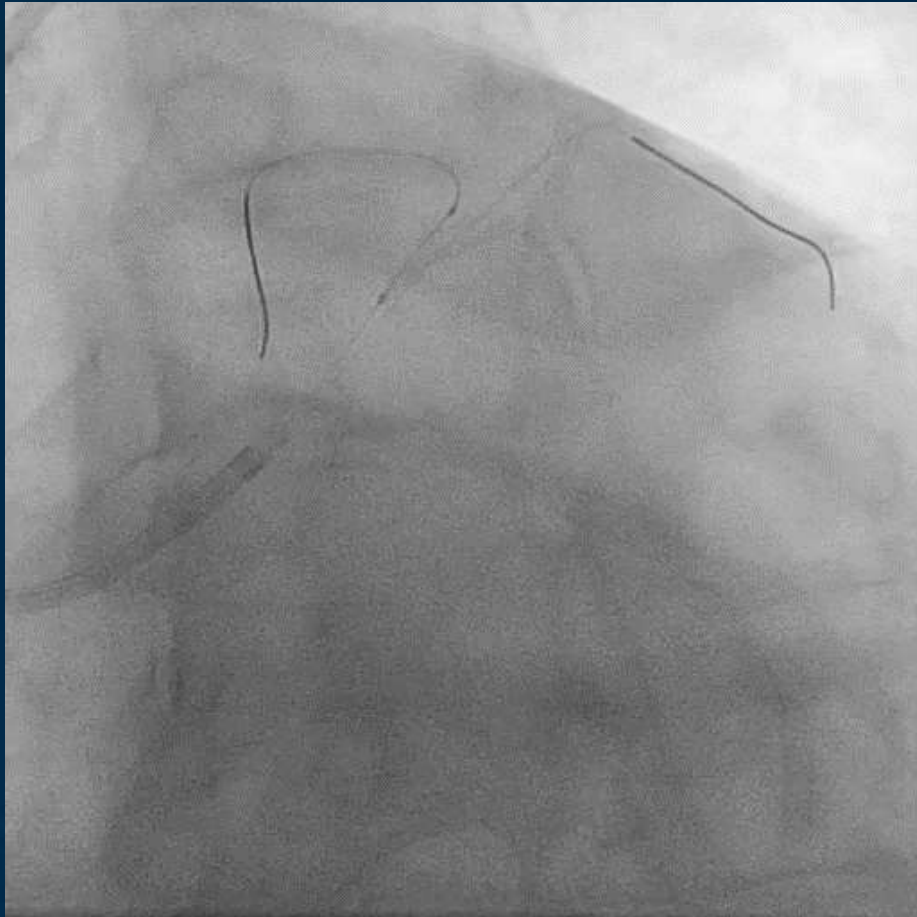
71/M SA, 3VD, PCI for LAD/Dg bifurcation



- GW : Sion blue(LAD), Runthrough NS(Dg)
 - Pre-dil : Ryurei 2.0*15
- Stent : Ultimaster Tansei 2.5*24mm up to 12 atm on Dg

Case 1

71/M SA, 3VD, PCI for LAD/Dg bifurcation



- Balloon crush by Ryurei 2.0*15mm
- Stent : Ultimaster Tansei 3.5*38mm up to 12 atm on p-mLAD

Case 1

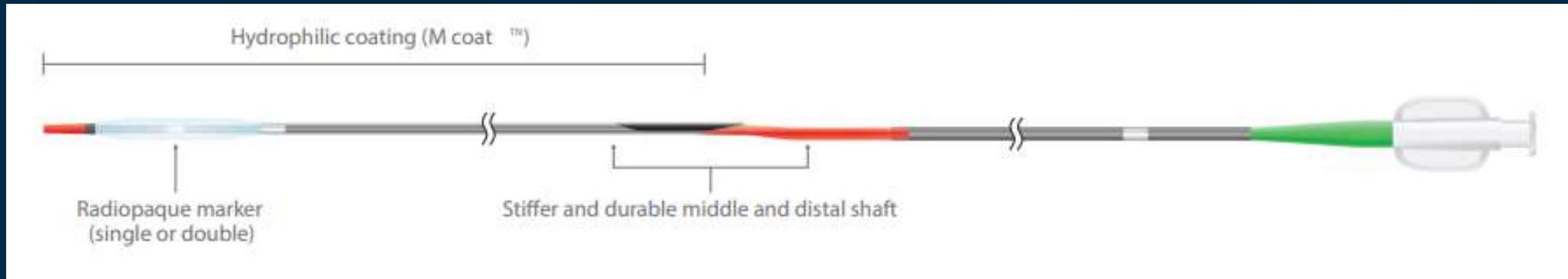
71/M SA, 3VD, PCI for LAD/Dg bifurcation



- Re-wiring to Dg by Runthrough NS
- Crossing fail : IKAZUCHI 1.0*6, Microcatheter under Anchor balloon technique
 - Ryurei 1.25*10mm → Crossing

Ryurei™ PTCA Dilatation Catheter

- Slender profile, Flexible distal part, Robust and pushable shaft

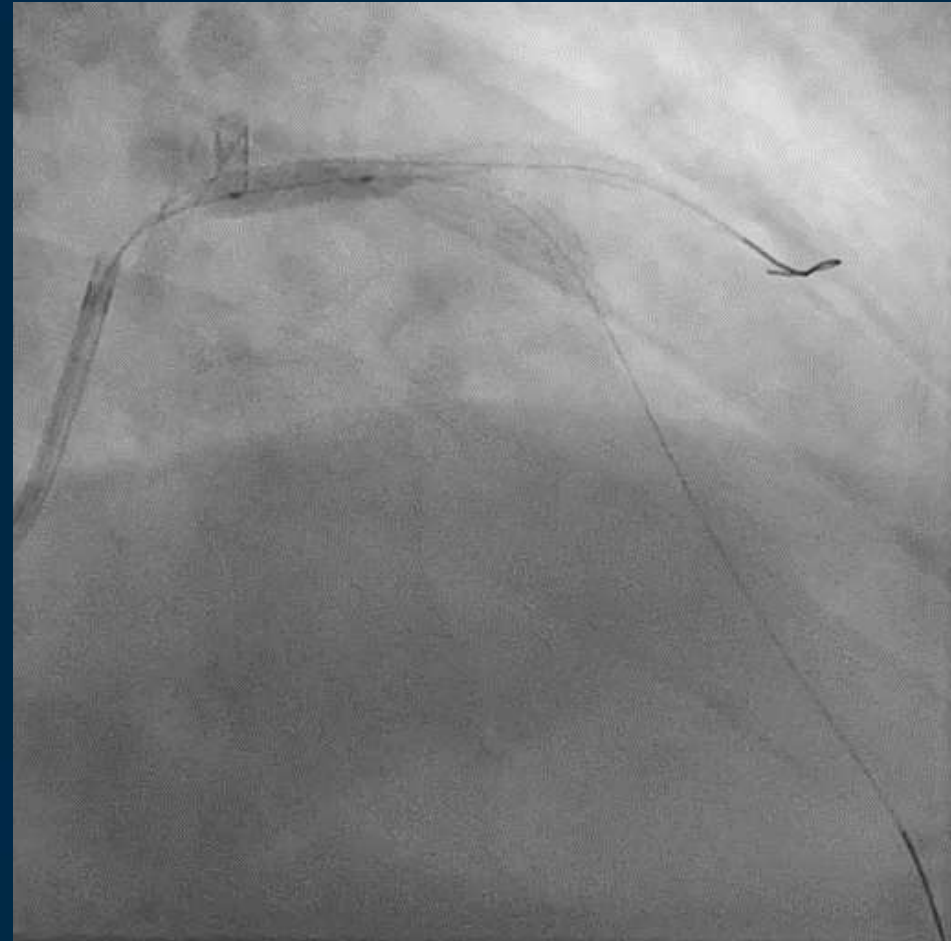
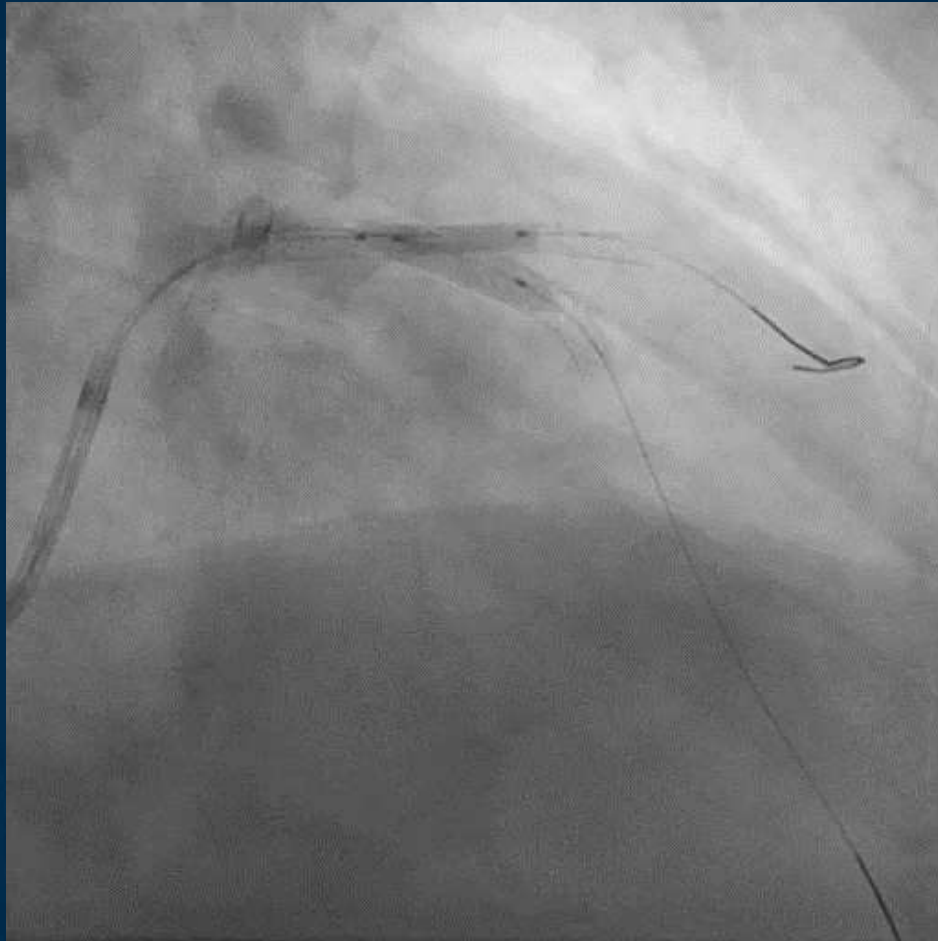


- Less gab between GW and tip



Case 1

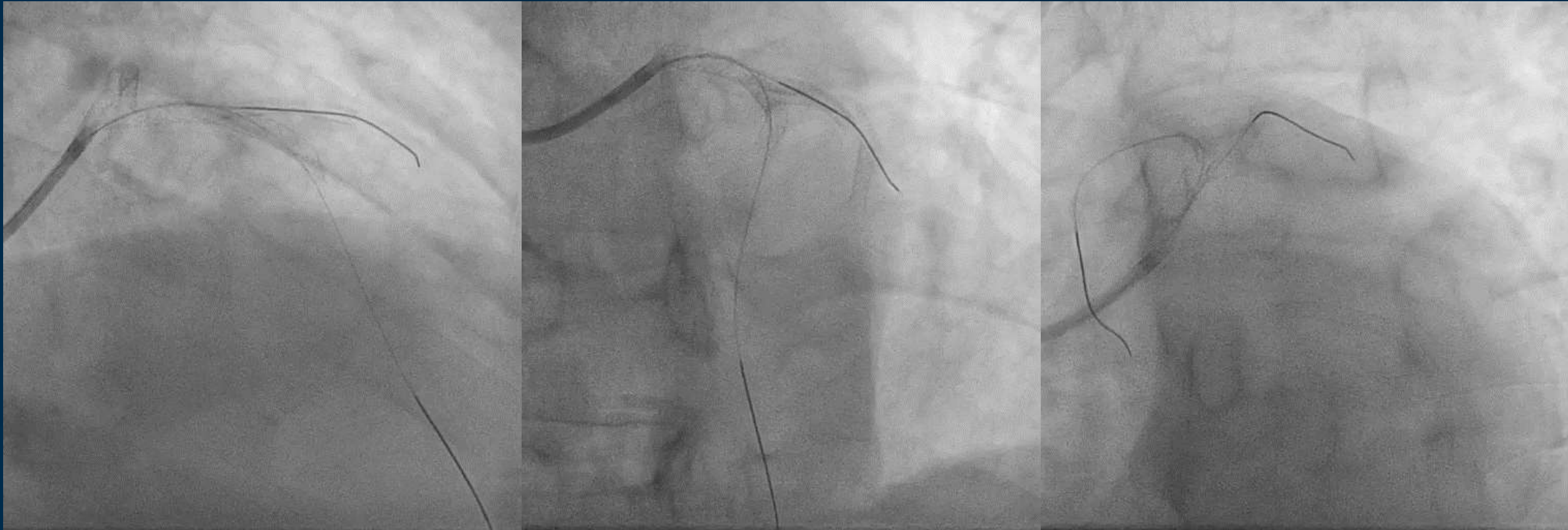
71/M SA, 3VD, PCI for LAD/Dg bifurcation



- FKB : Accuforce NC 2.5*15, Accuforce NC 3.5*12
- Re-POT : Accuforce NC 3.5*12mm up to 20 atm

Case 1

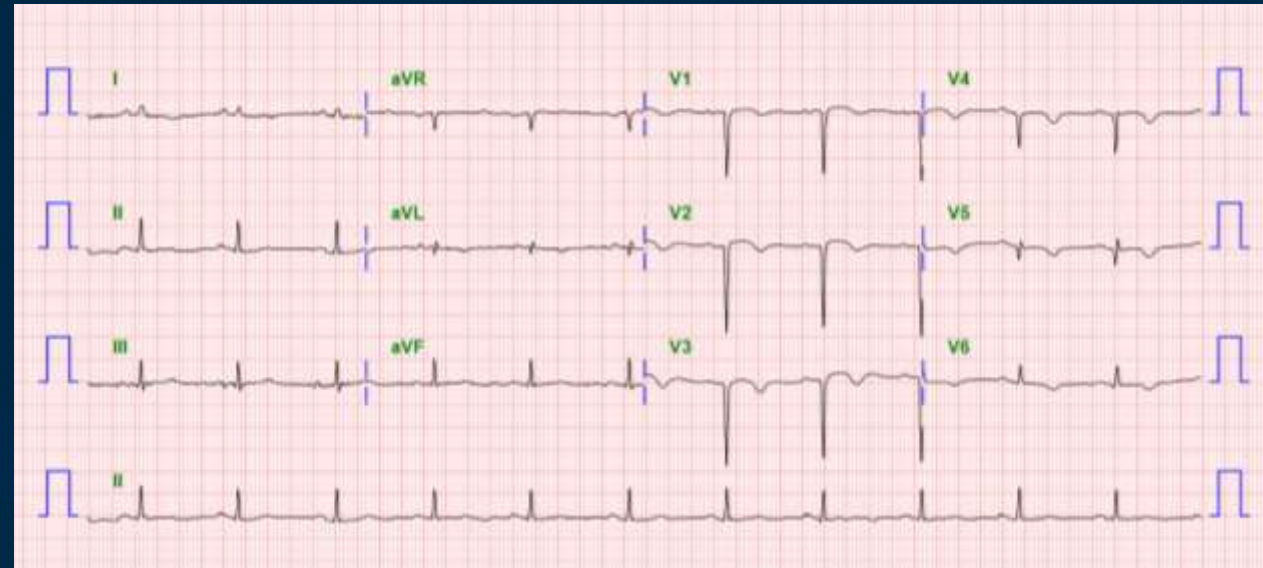
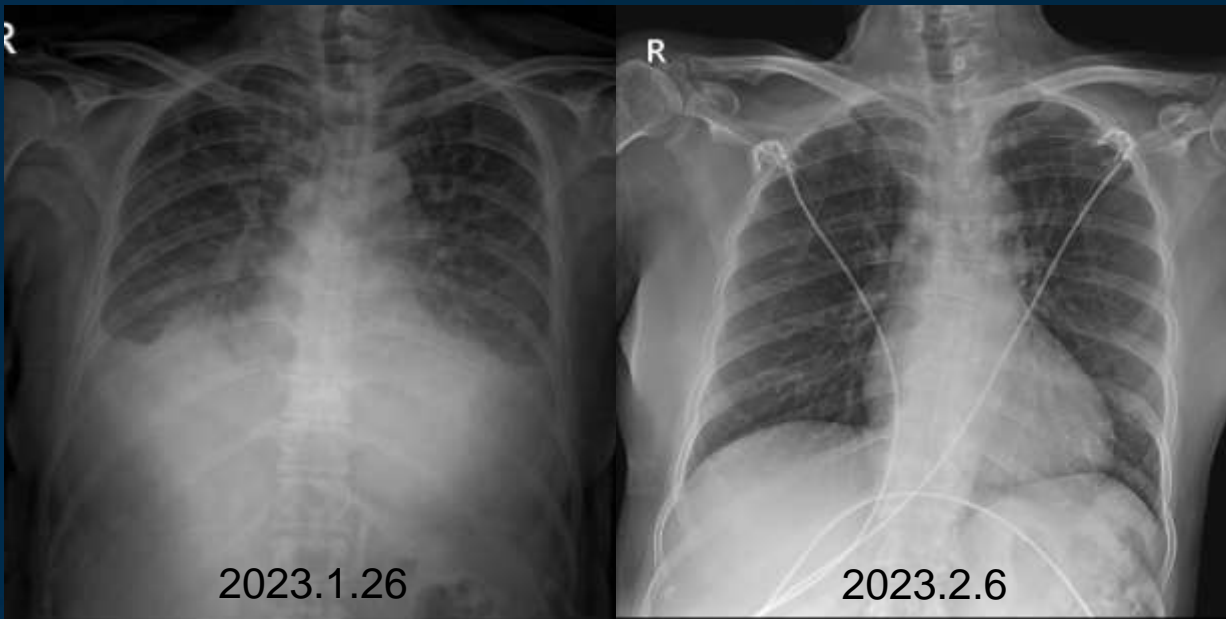
71/M SA, 3VD, Final result



Case 2

C/C : Dyspnea, Chest discomfort

- 59/F
- P/Hx : HBP without medication for 2 yrs
- Troponin-T(ng/ml) / CK-MB(ng/ml) : 0.167/4.72 → 0.040/1.3



Case 2

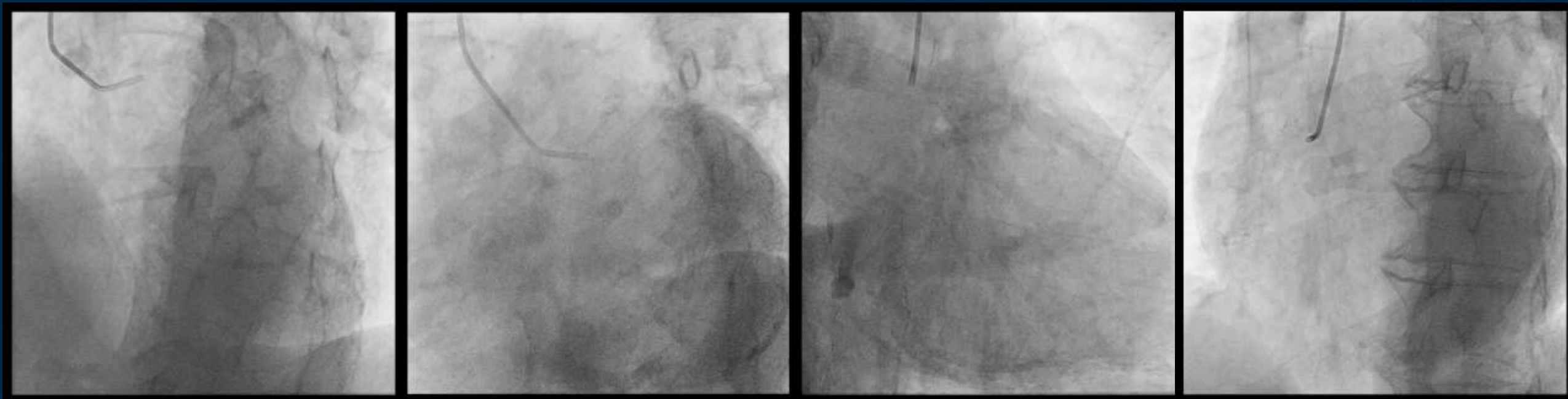
59/F Dyspnea



- EF 30%
- Extensive LAD territory ischemia insult
- Mild MR/TR with mild pul. HTN

Case 2

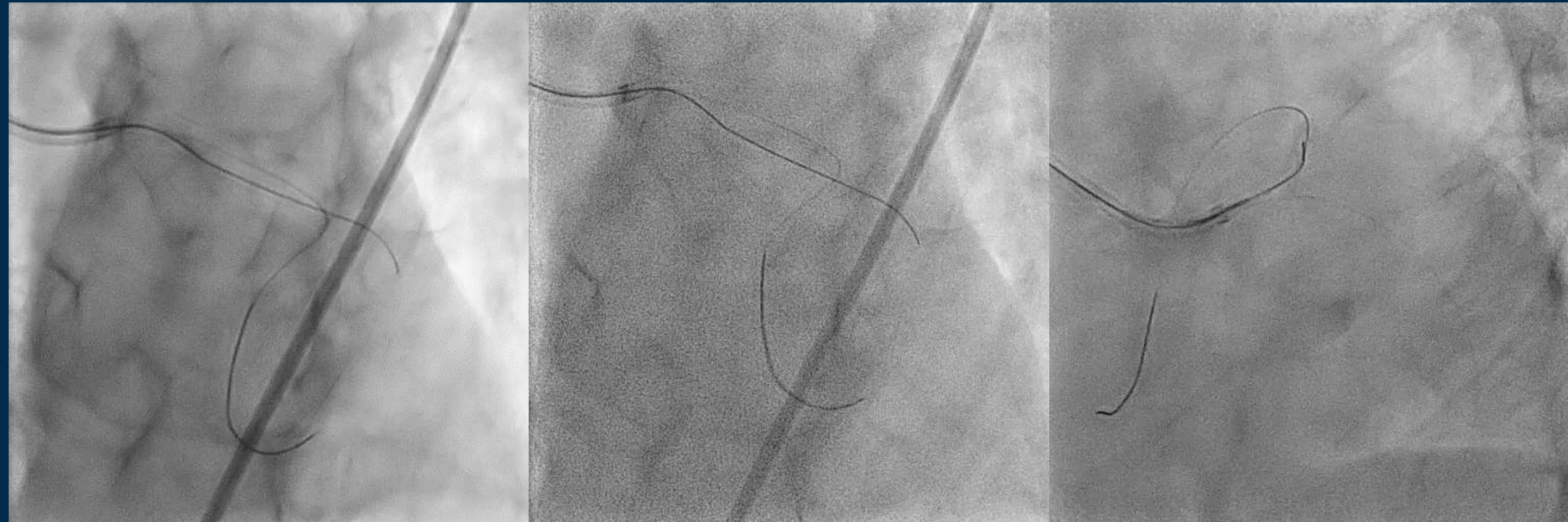
59/F Dyspnea, CAG(2023.2.6)



- Dx : ICMP with Severe LV systolic dysfunction, 2VD with LM dz.
- Plan : Full revascularization → PCI or CABG

Case 2

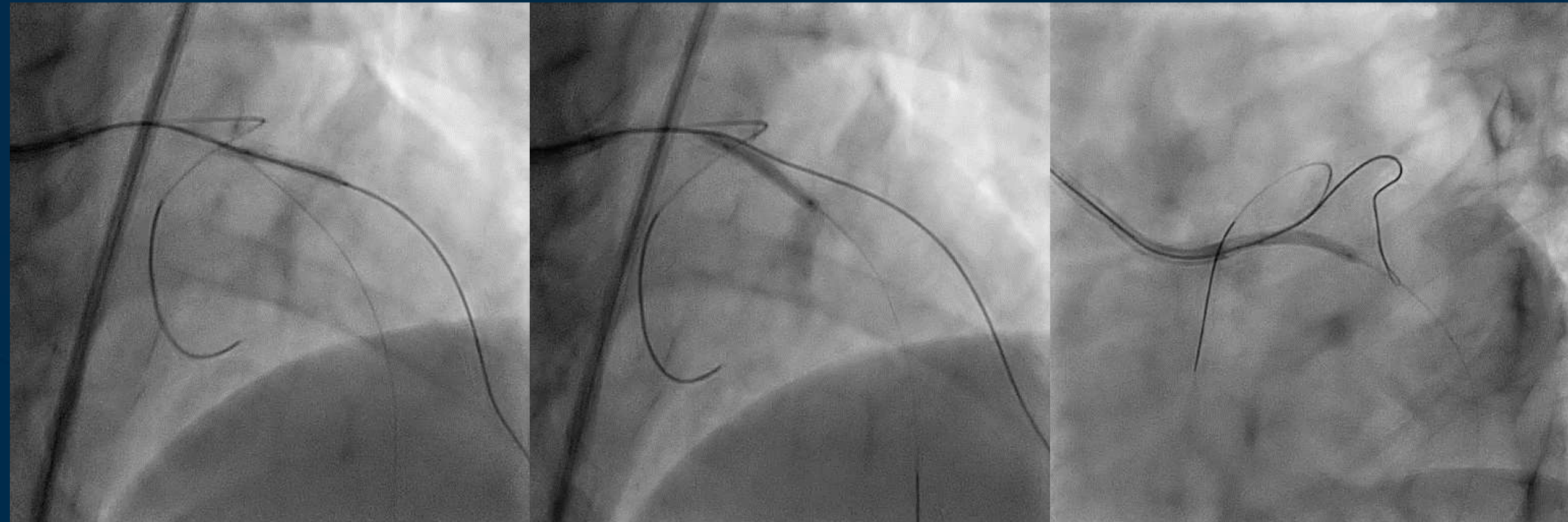
59/F ICMP, 2VD with LM dz.



- GC : 7Fr JL4.0SH
- GW : Sion blue(LCX), Turnpike LP + Fielder XT-R → Runthrough NS (LAD), Fielder XT-R (Dg)

Case 2

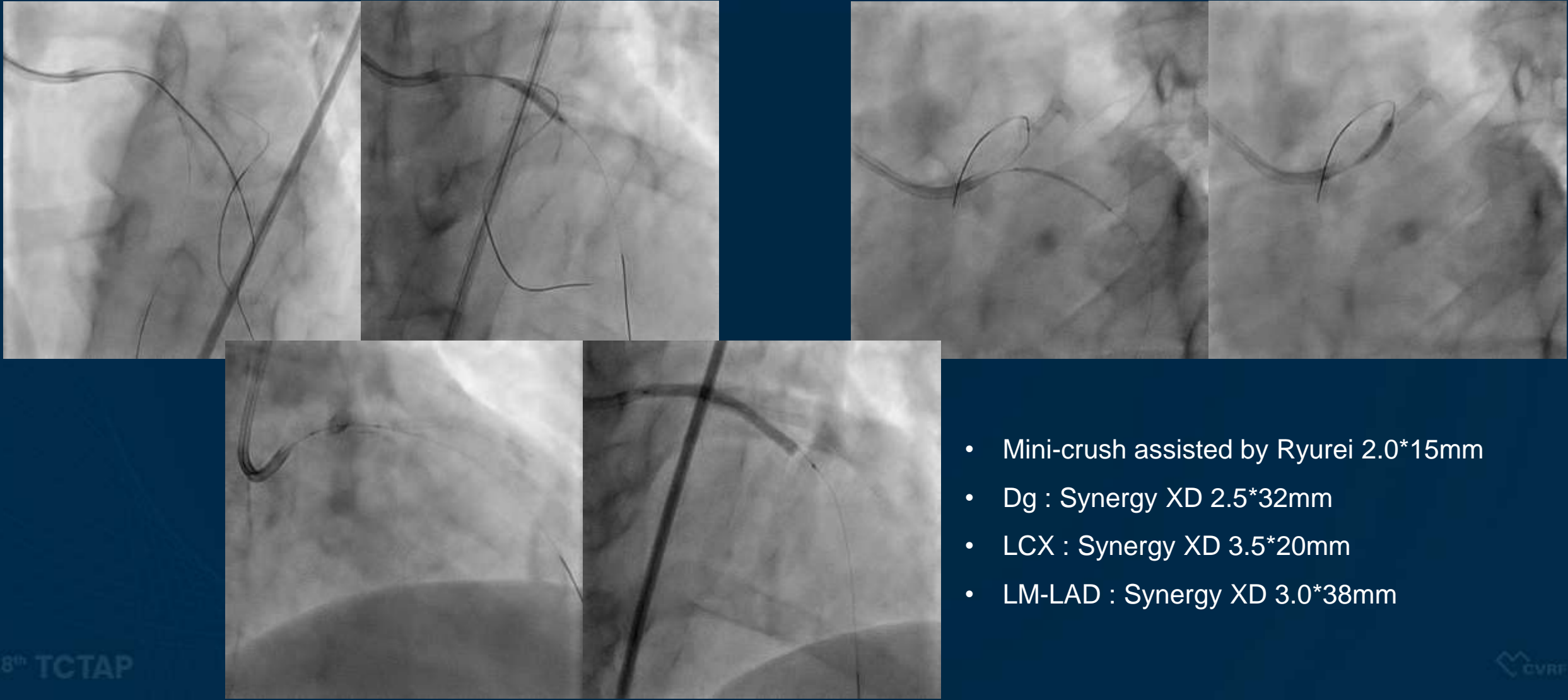
59/F ICMP, 2VD with LM dz.



- GW : Sion blue(LCX), Runthrough NS (LAD), Fielder XT-R (Dg)
- Pre-dilatation : Ryurei 2.0*15mm up to 14 atm

Case 2

59/F ICMP, 2VD with LM dz.



- Mini-crush assisted by Ryurei 2.0*15mm
- Dg : Synergy XD 2.5*32mm
- LCX : Synergy XD 3.5*20mm
- LM-LAD : Synergy XD 3.0*38mm

Case 2

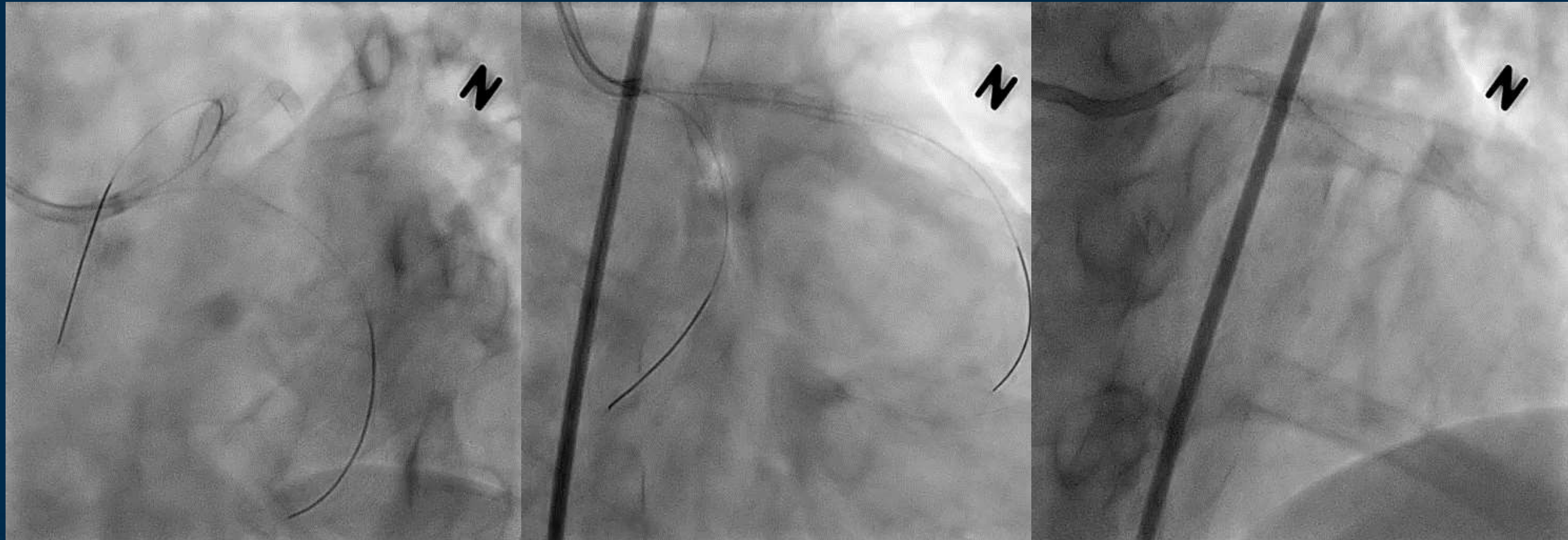
59/F ICMP, 2VD with LM dz.



- Dg : Accuforce NC 2.5*15
- LAD : Accuforce NC 3.0*15
- LCX : Accuforce NC 3.5*12
- Final POT : Accuforce NC 3.5*12, 22 atm

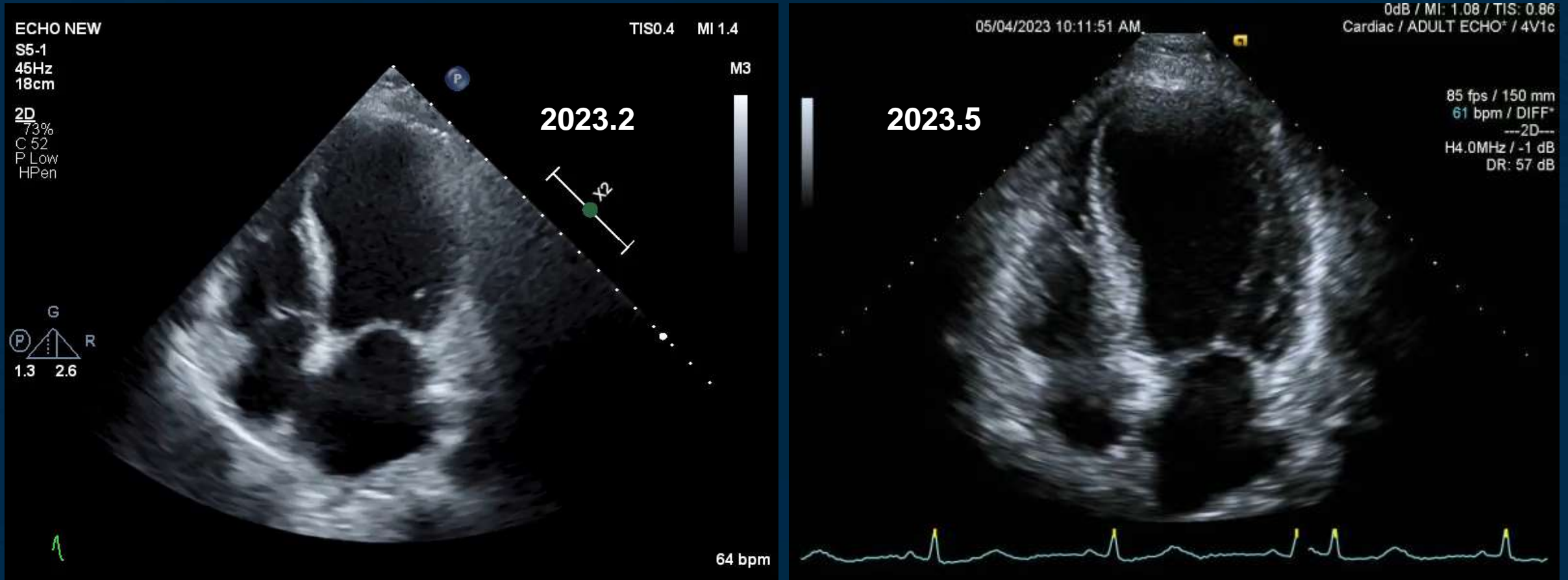
Case 2

59/F ICMP, 2VD with LM dz., Final result



Case 2

59/F ICMP, 2VD with LM dz., F/U Echo after 3 months



- LVEF : 30 → 45%
- Mild MR/TR → Trivial MR/TR

Conclusion

- Coronary bifurcation stenting is about 20% of all PCI cases.
- Bifurcation PCI has many technical difficulties and high risk of complications.
- There is no dependable bifurcation PCI strategy.
- Short procedure time and tailored stenting strategy is very important.
- Mini-crush technique has some advantages in selective patients.
- Ryurei balloon catheter has good **pushability, crossability** and better **trackability**.
These characteristics may be helpful to treatment complex bifurcation lesions.