A Challenging Case Report: Chronic Total Occlusion Intervention in a Heart Failure with Reduced Ejection Fraction Patient

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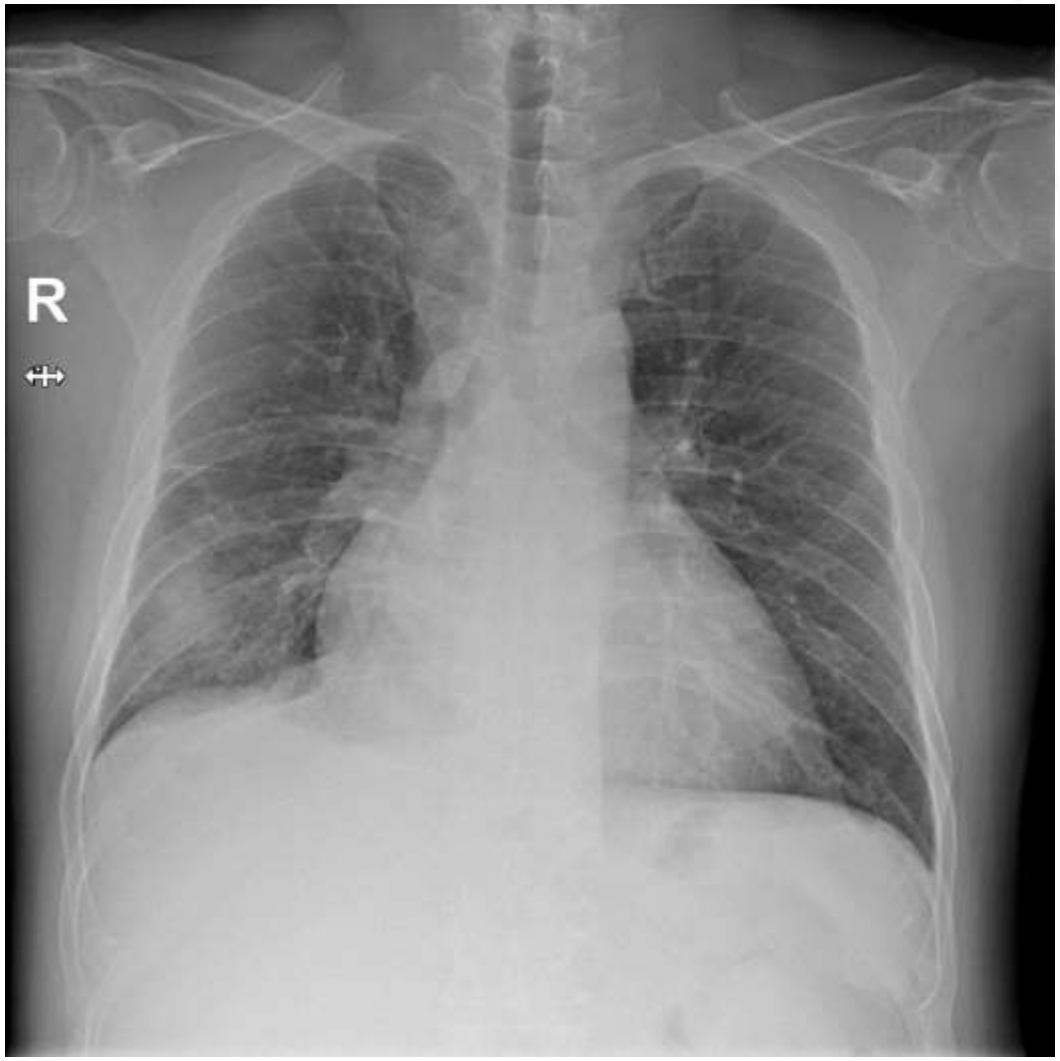
Disclosure

- The authors have no financial conflicts of interest to disclose concerning the presentation

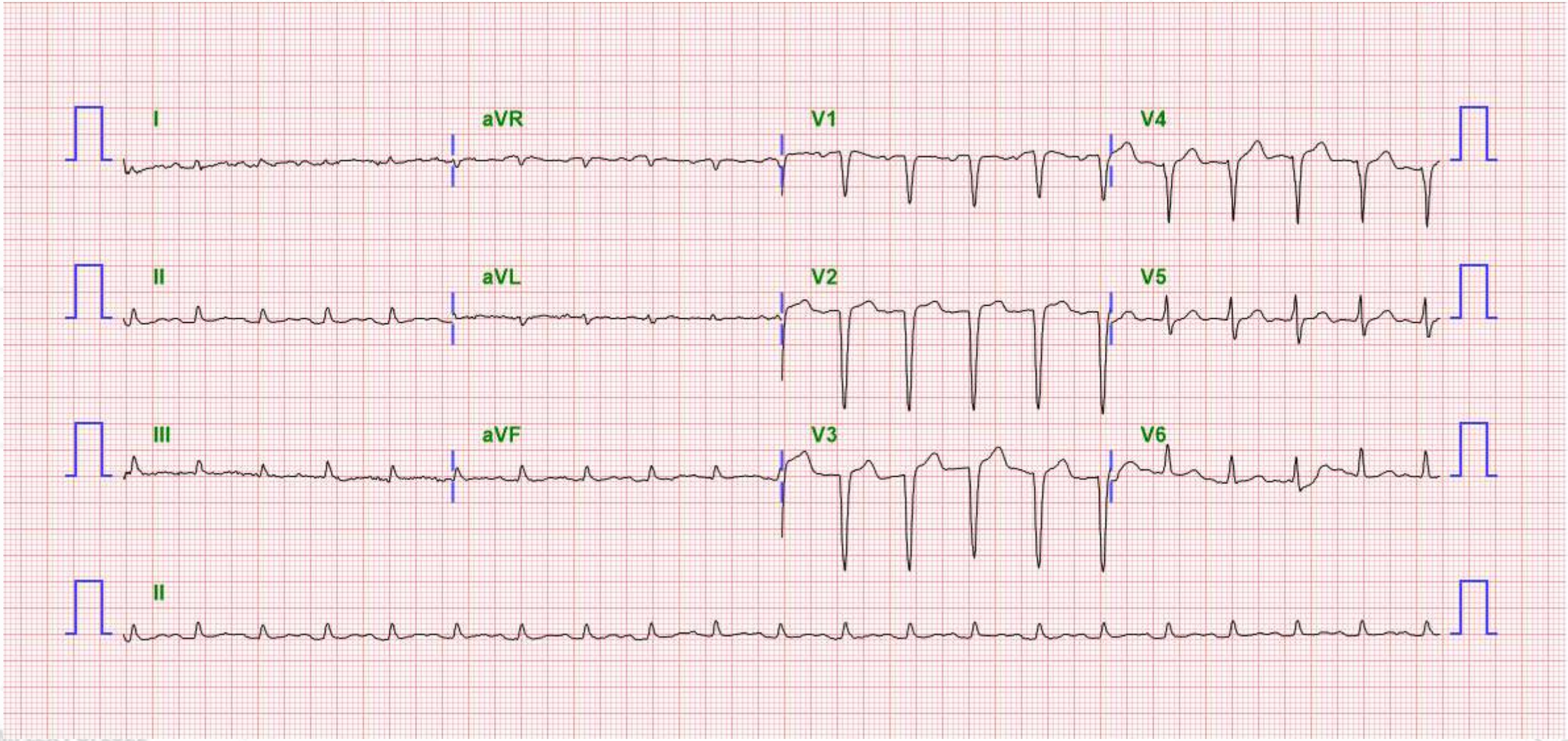
Case 1

- M/44, 178.8cm, 97.4kg, BMI 30.47 BSA 2.2
- C.C: Abdominal distension & Dyspnea
- Medical Hx
  - None
- Social Hx
  - Heavy alcoholics: 4-5 times/week, each soju 4-5 bottle
  - Current smoker: 30 pack-years

CXR(2021.10.04)



EKG(2021.10.04)



24-hr Holter(2021.10.12)

General

158447	QRS complex
7	Ventricular beats (0%)
4	Supraventricular beats (0%)
0.00%	of total time in AF/AFL
0.00	min total duration of AF/AFL
0.00%	of total time classified as noise

Heart Rates

102	Minimum at 4:22 AM
116	Average
133	Maximum at 5:44 PM
0.86	seconds Max R-R at 10:30 PM
	seconds Max Pause at
0	Bradycardia events (<50 bpm), 0% total

Ventriculars

7	Isolated
0	Couplets
0	Triplets
0	Bigeminal Cycles
0	Runs totaling 0 beats, 0% total

Supraventriculars

4	Isolated
0	Couplets
0	Triplets
0	Runs totaling 0 beats, 0% total

ST Level

-0.09 mV minimum at 5:43 PM
0.00 mV Average

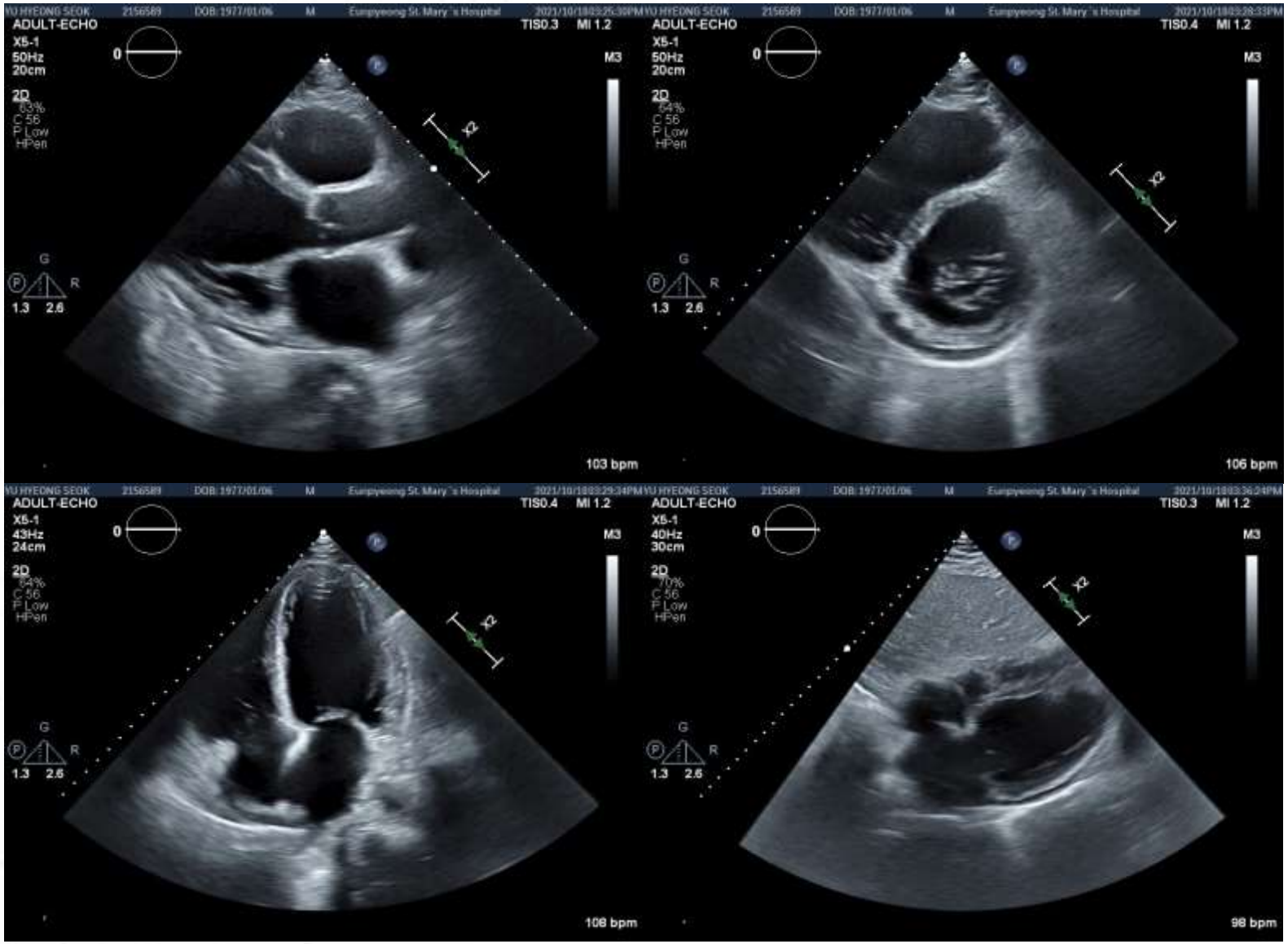
Interpretation

Interpretation

APC, VPC
sinus tachycardia

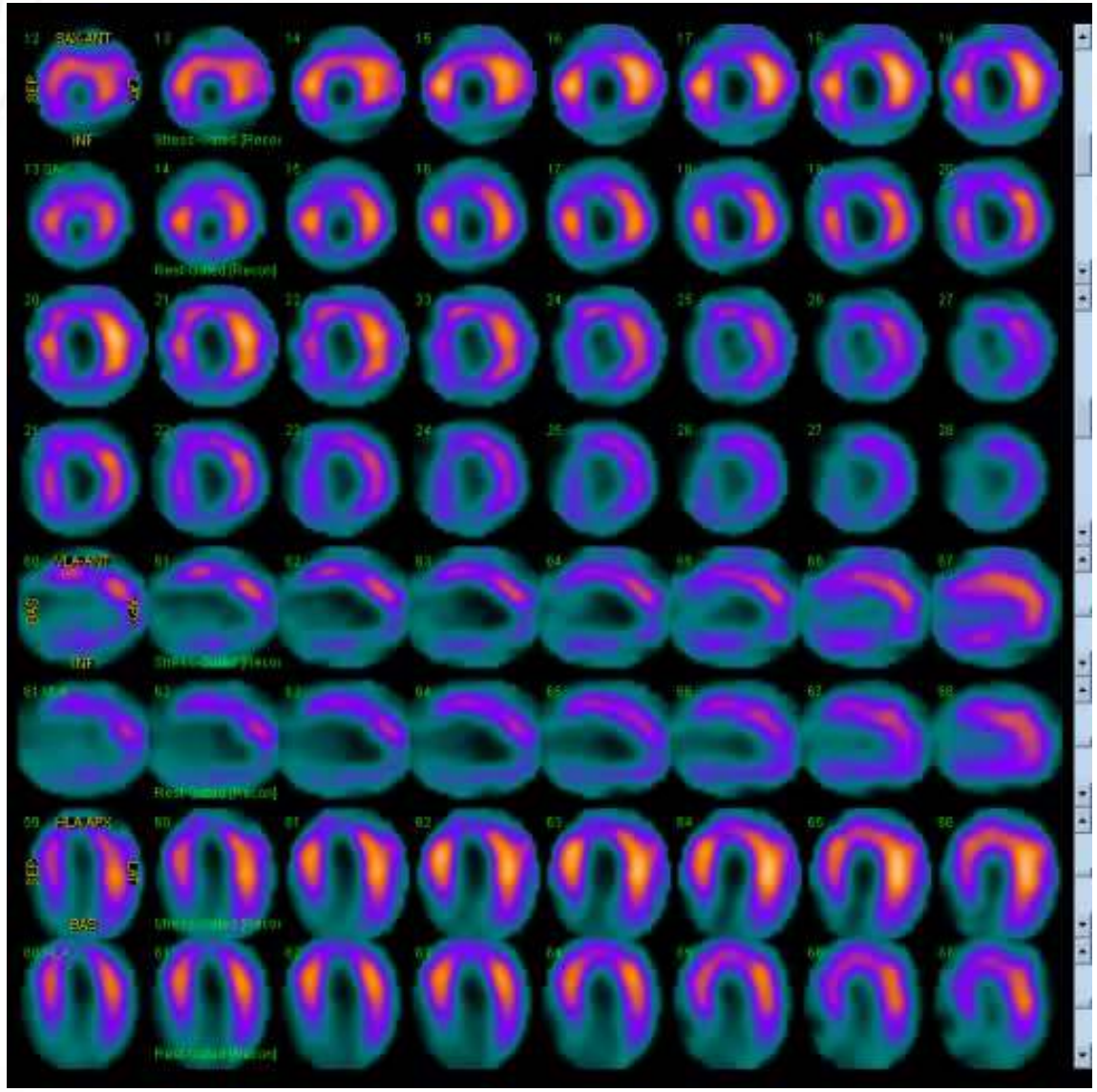
10/13/2021
Sung-Won Jang M.D.

TTE(2021.10.18)



- EF 17.7%
- Diffuse global hypokinesia
- RVSP 44.2mmHg
- Mild MR/TR

Myocardial SPECT (2021.10.18)



CAG(2021.10.19)

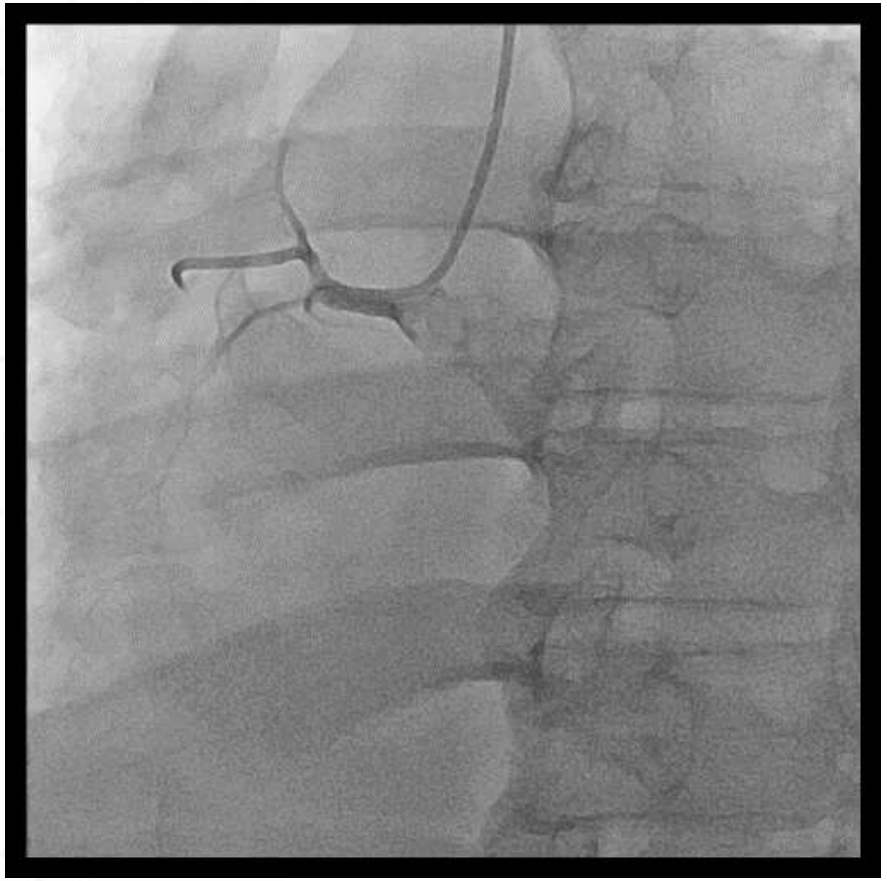
LCA c JL 5-3.5

RAO 26 CRA 38

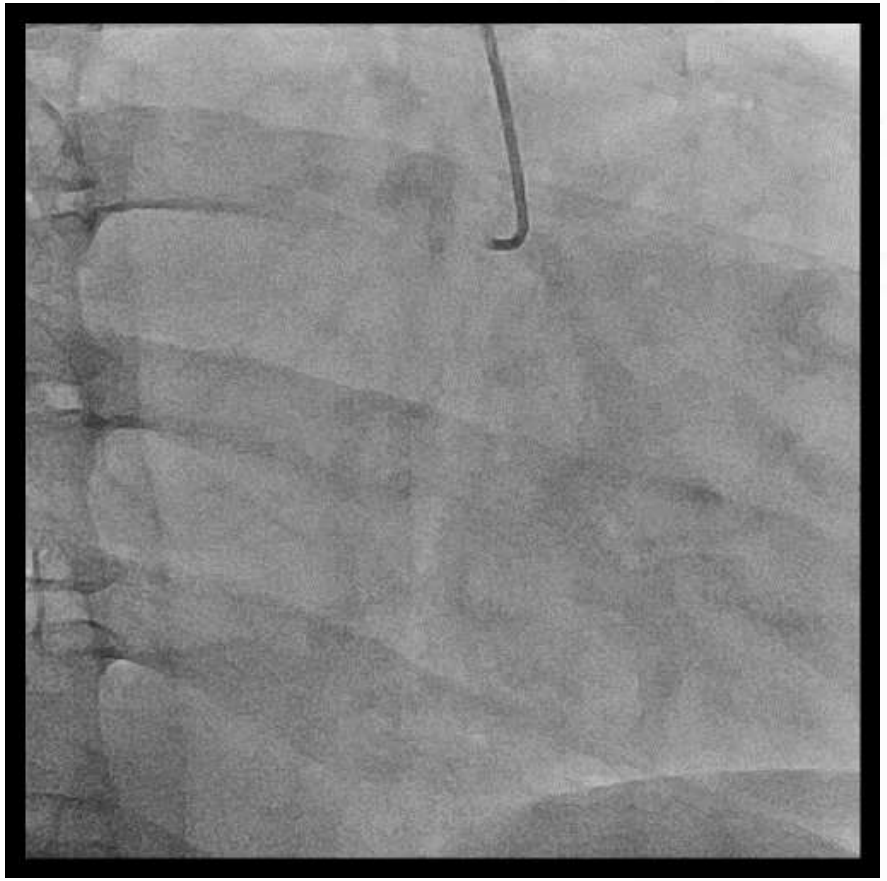
RAO 11 CAU 35

CAG(2021.10.19)

RCA c JR 5-4



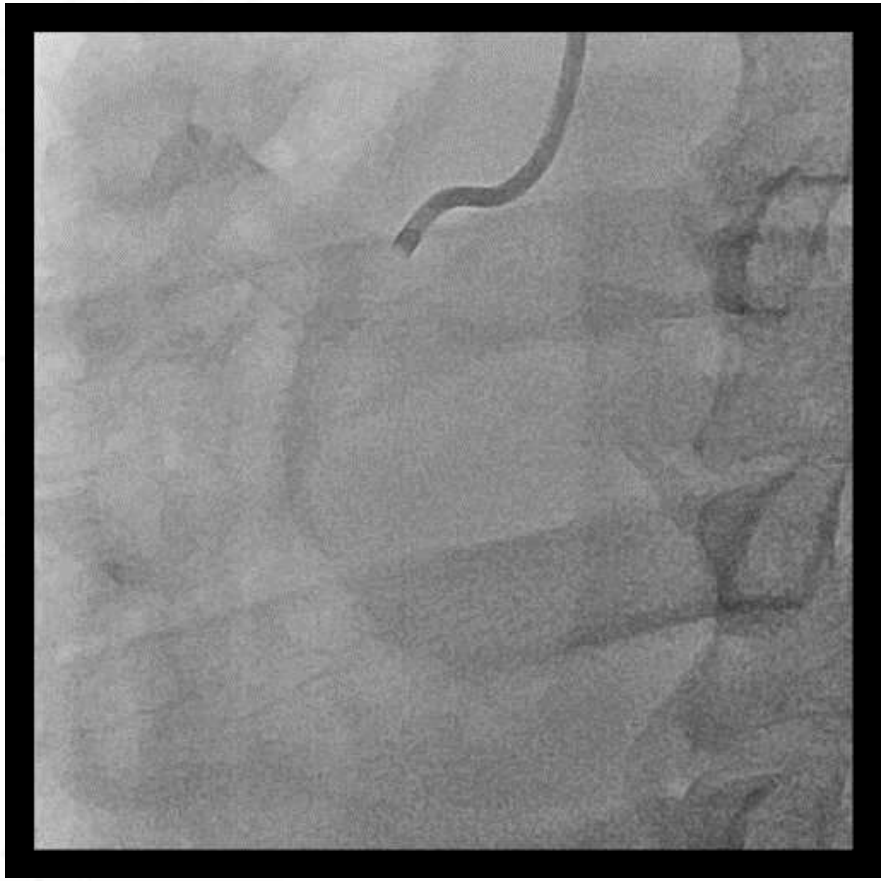
LAO 26 CRA 2



RAO 27 CRA 3

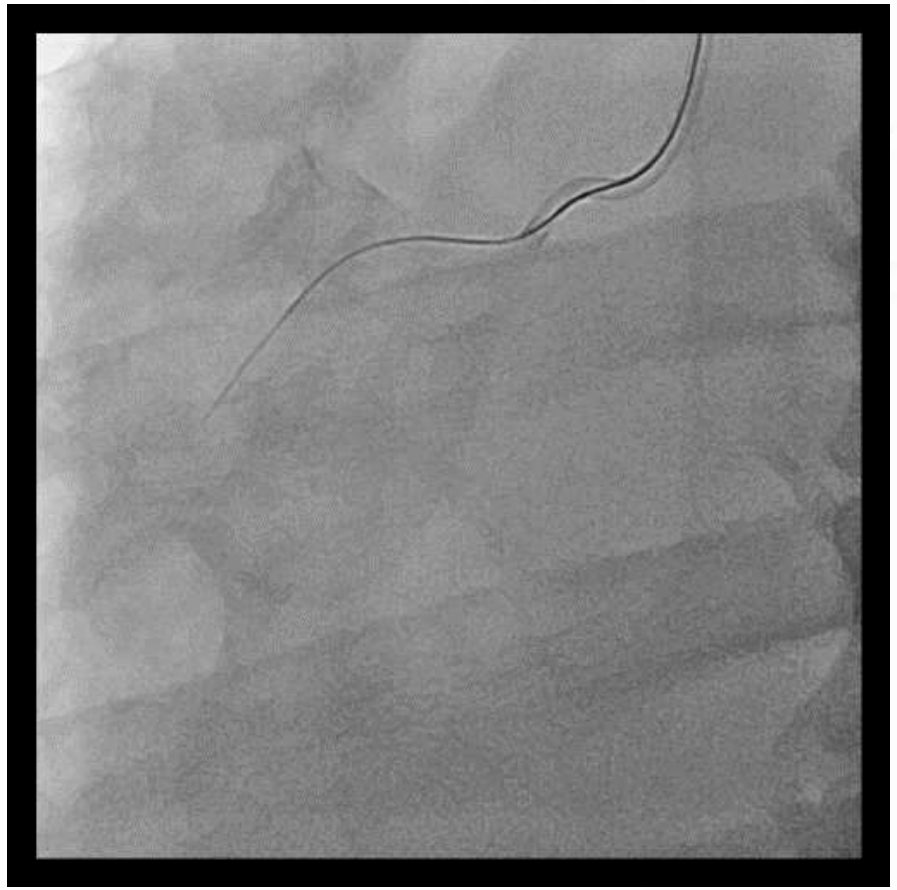
CAG(2021.10.19)

RCA c ALG 6-1



LAO 32 CAU 4

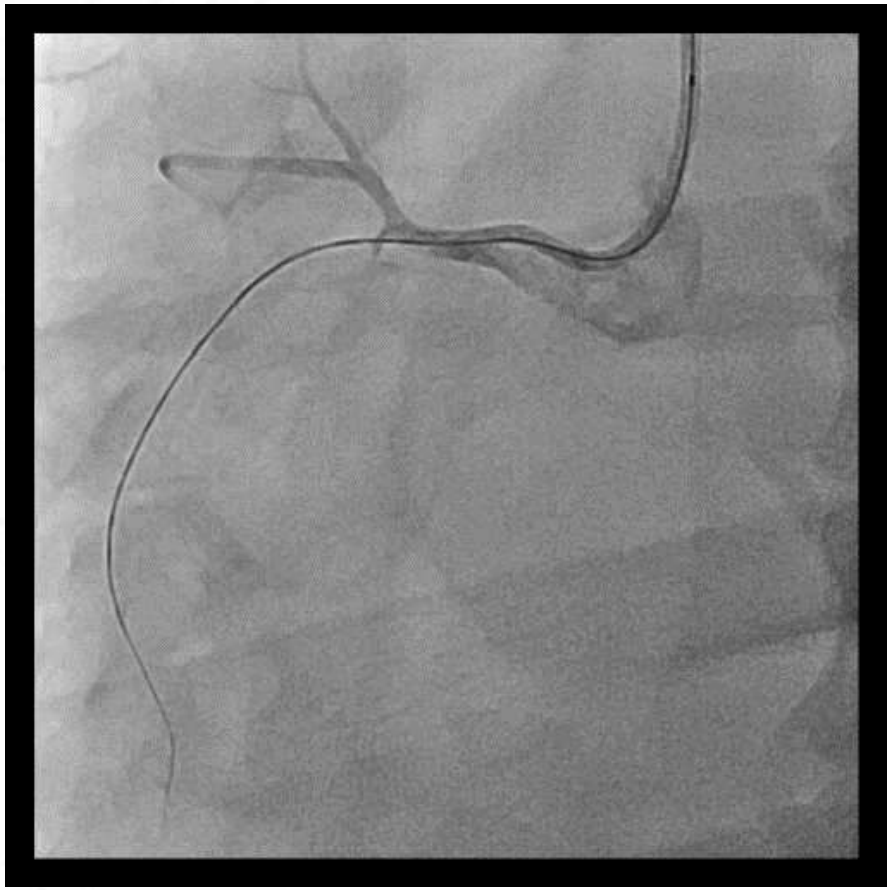
BMW 014” G/W



LAO 32 CAU 4

CAG(2021.10.19)

BMW 014” G/W



LAO 32 CAU 4

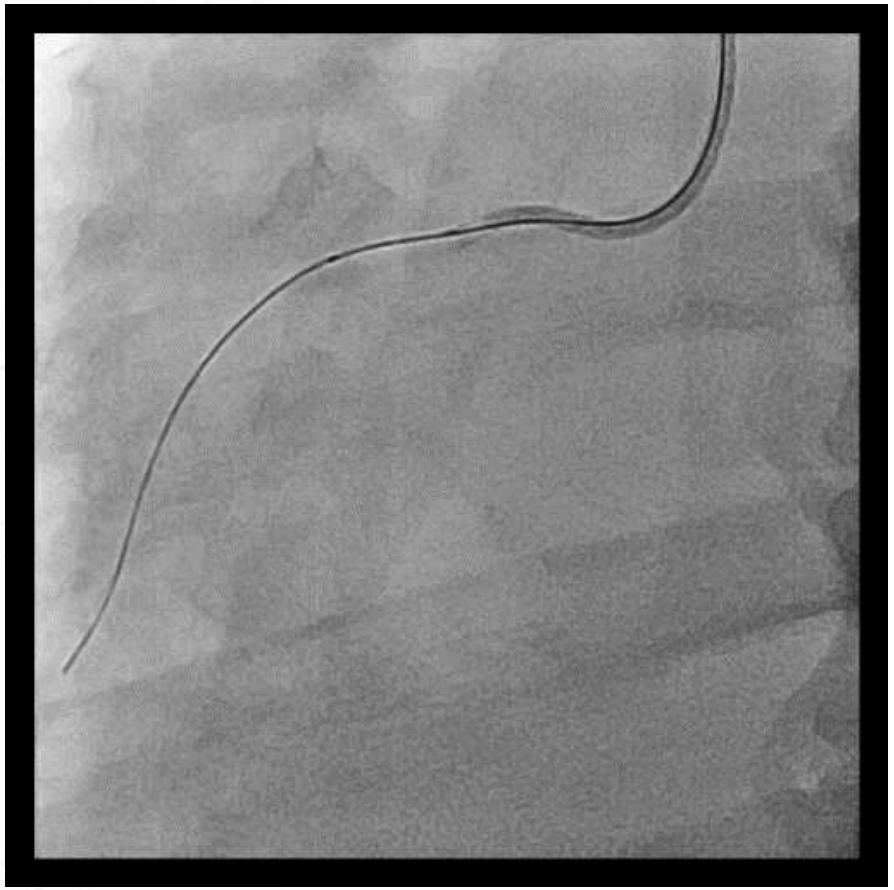
Finecross microcatheter + Fielder XT-A

LAO 32 CAU 4

COMPLEX PCI 2022
CVRF

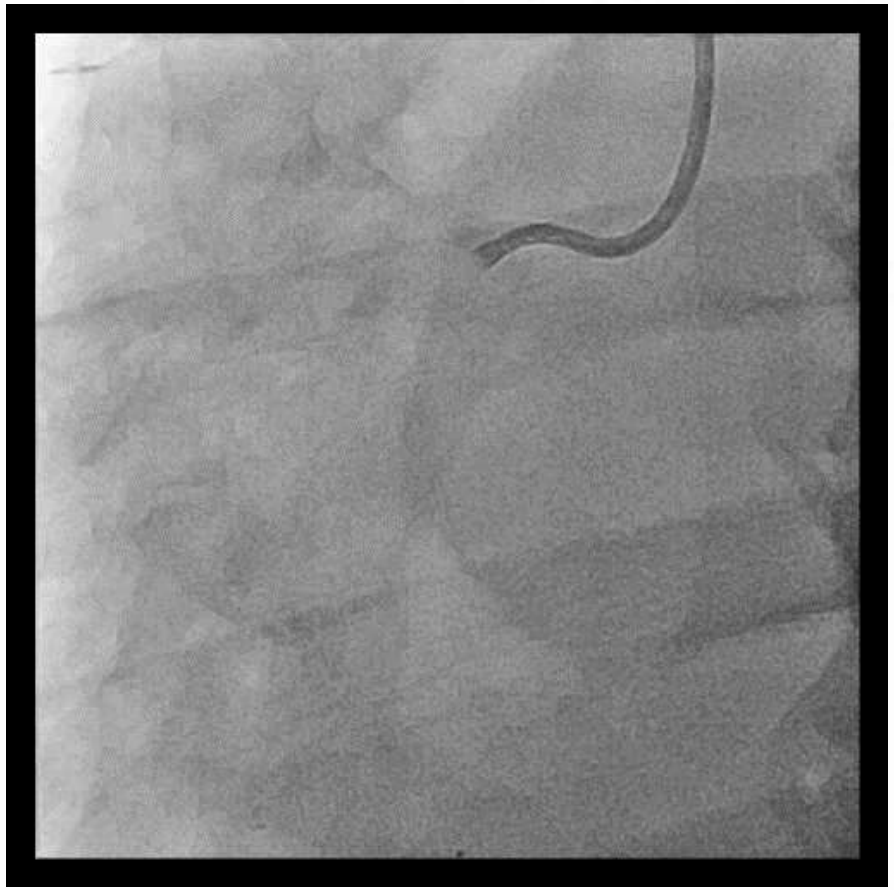
CAG(2021.10.19)

Finecross microcatheter + Gaia first



LAO 32 CAU 4

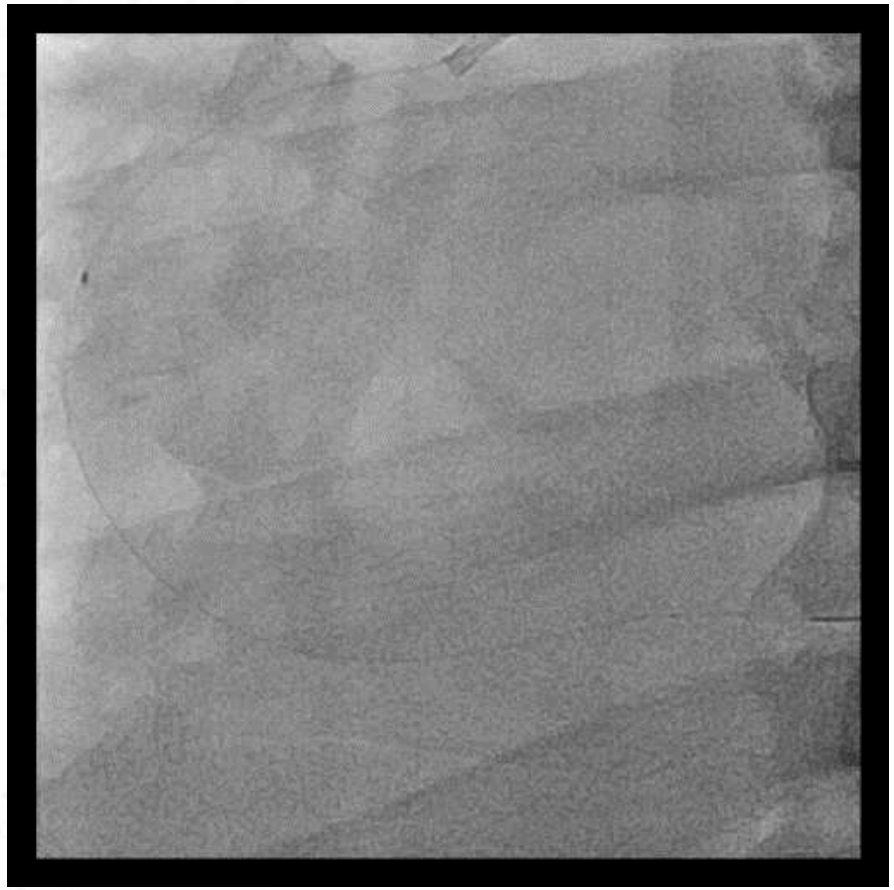
Finecross microcatheter + Gaia first



LAO 32 CAU 4

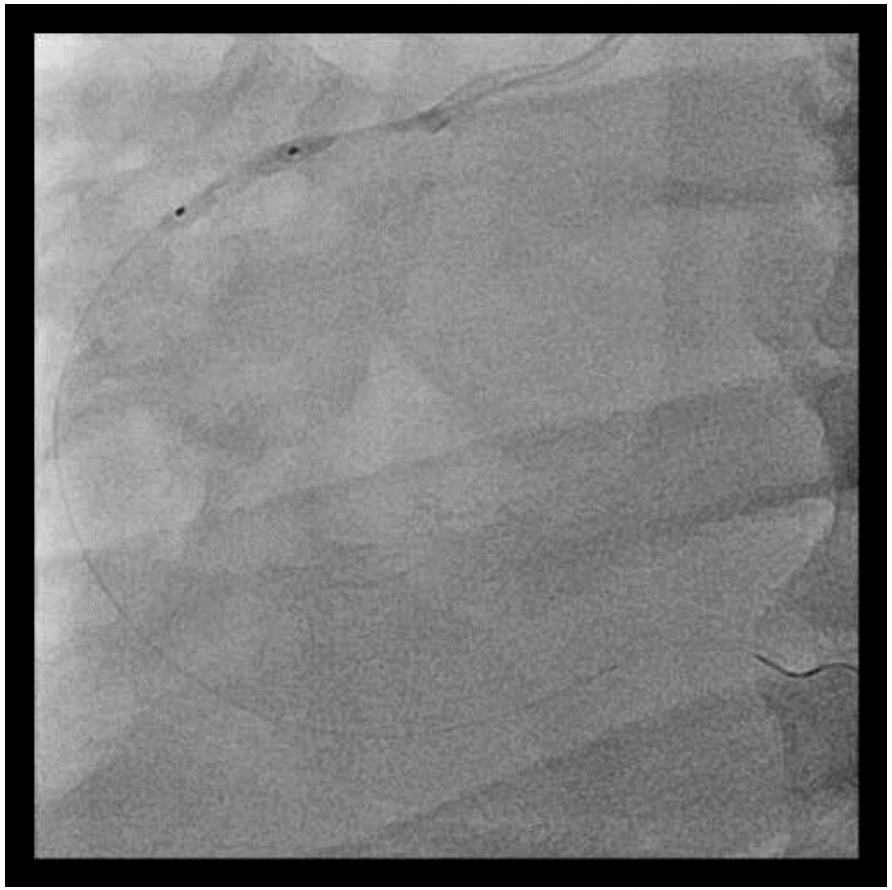
CAG(2021.10.19)

Ikazuchi 1.0*6 balloon



LAO 32 CAU 4

Selthru NC 2.5*15 balloon



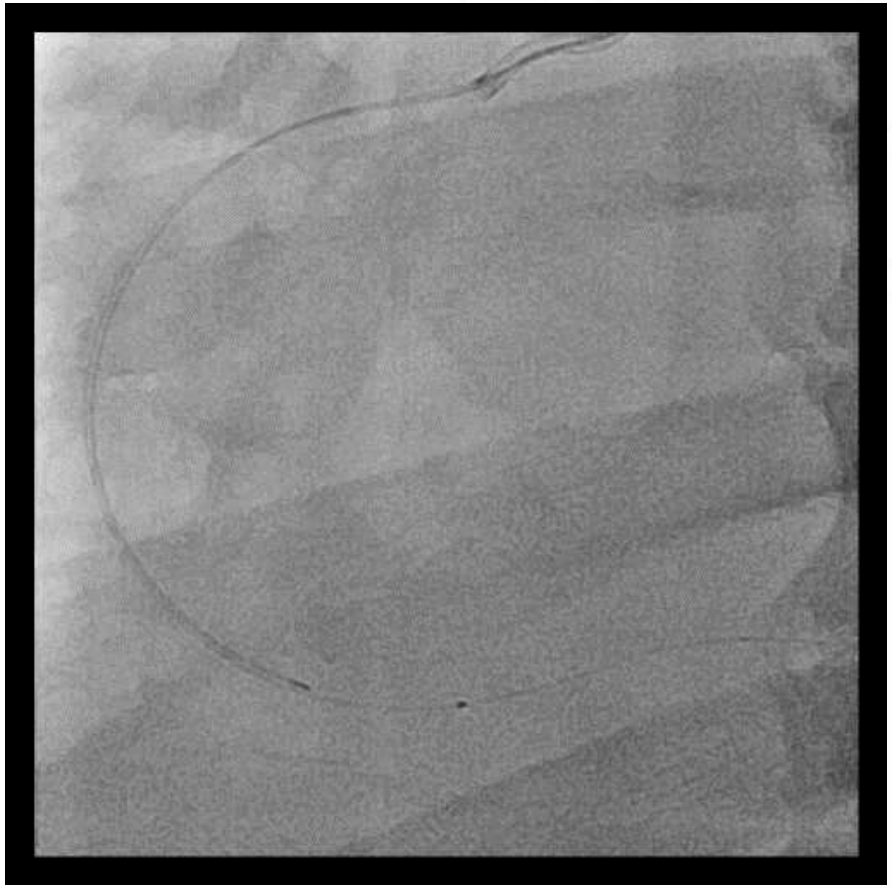
LAO 32 CAU 4

CAG(2021.10.19)

After pre-ballooning

LAO 32 CAU 4

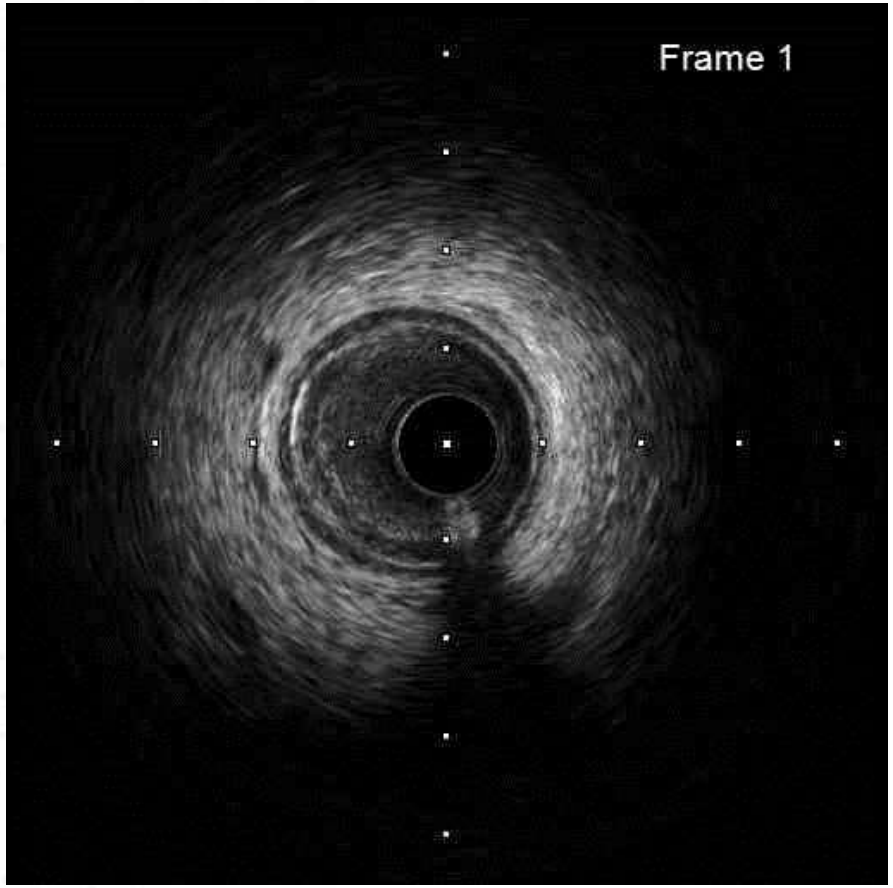
IVUS

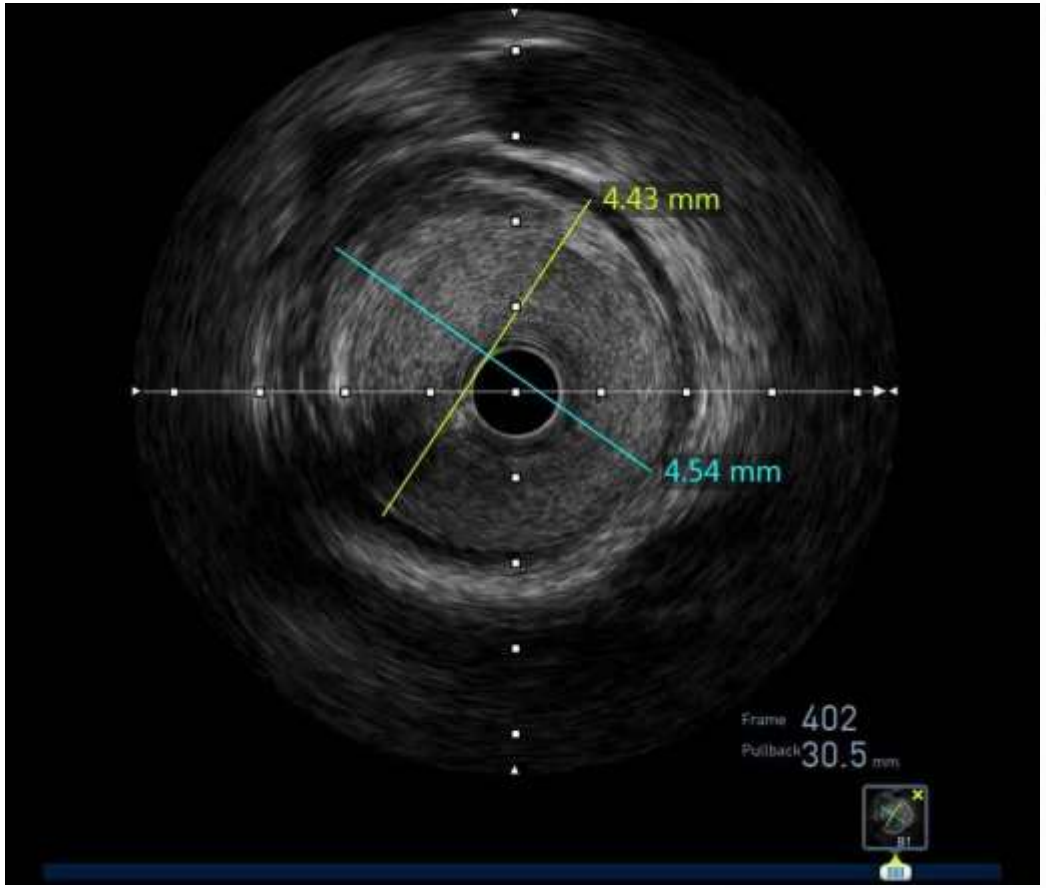


LAO 32 CAU 4

CAG(2021.10.19)

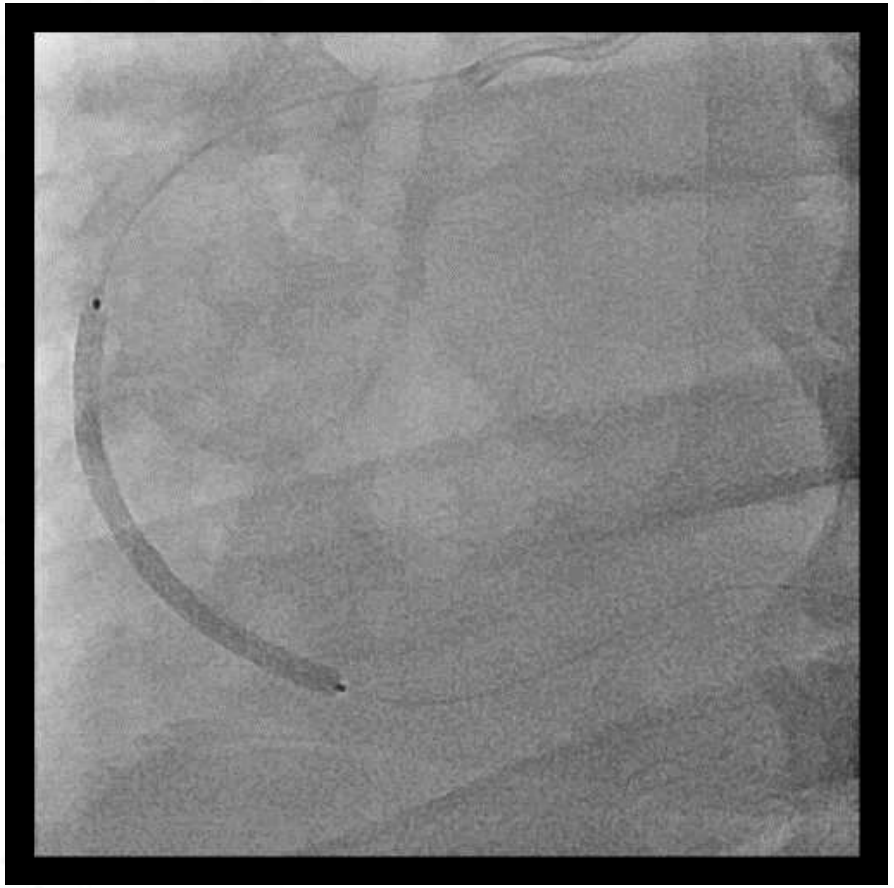
IVUS





CAG(2021.10.19)

Synergy 2.75*48



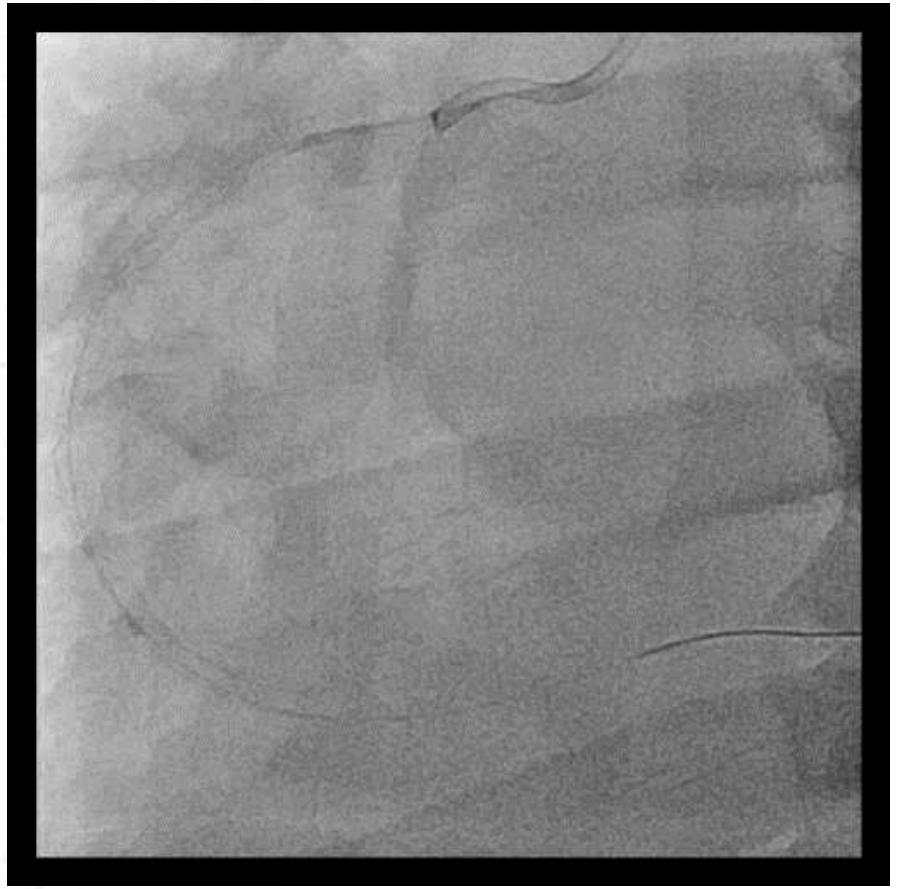
LAO 32 CAU 4

Synergy 3.0*38

LAO 32 CAU 4

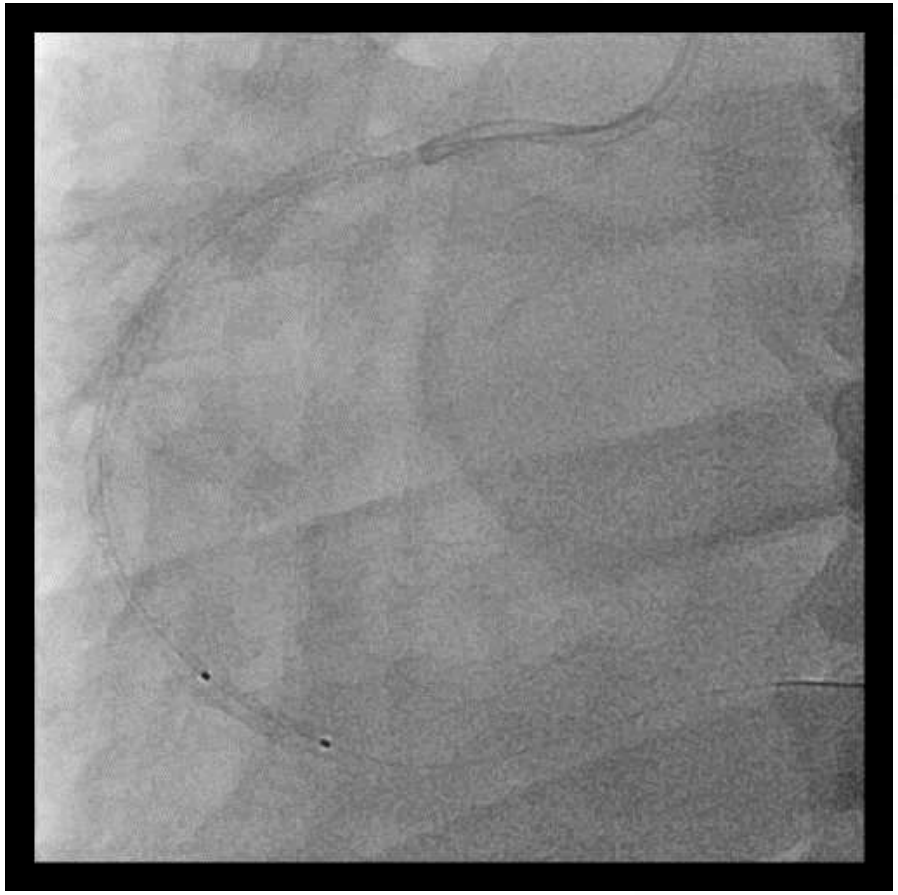
CAG(2021.10.19)

f/u angio



LAO 32 CAU 4

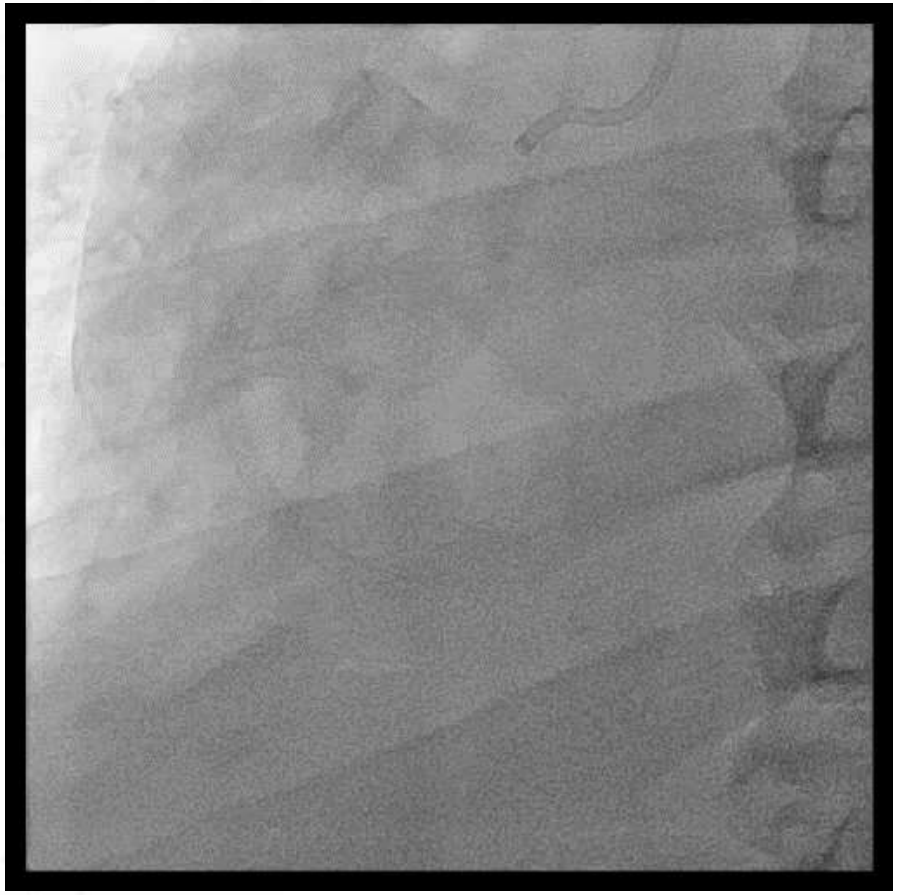
FINE NC 3.75*15 balloon



LAO 32 CAU 4

CAG(2021.10.19)

Final angio



LAO 33 CAU 4

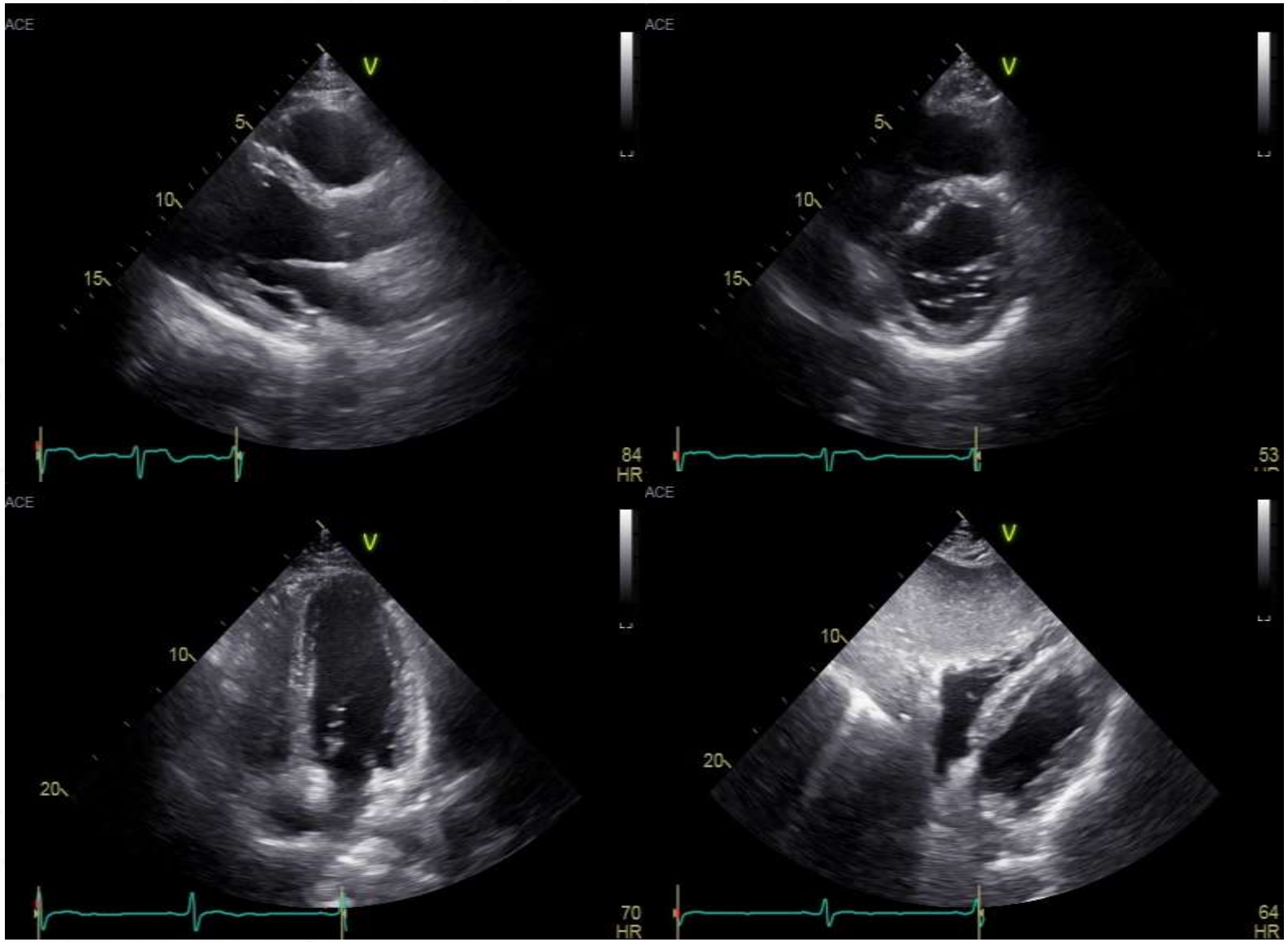
RAO 32 CAU 3

COMPLEX PCI 2022
CVRF

Medication

- Aspirin 100mg QD
- Prasugrel 10mg QD
- Rosuvastatin/Ezetimibe 10/10mg QD
- Valsartan 40mg QD
- Carvedilol 1.5625mg bid
- Spironolactone 12.5mg bid
- Furosemide 40mg bid
- Digoxin 0.25mg QD
- Tegoprazan 50mg QD

TTE(2022.5.6)



- EF 55.2%
- Diffuse global hypokinesia
- RVSP 22.6mmHg
- Trivial MR/TR

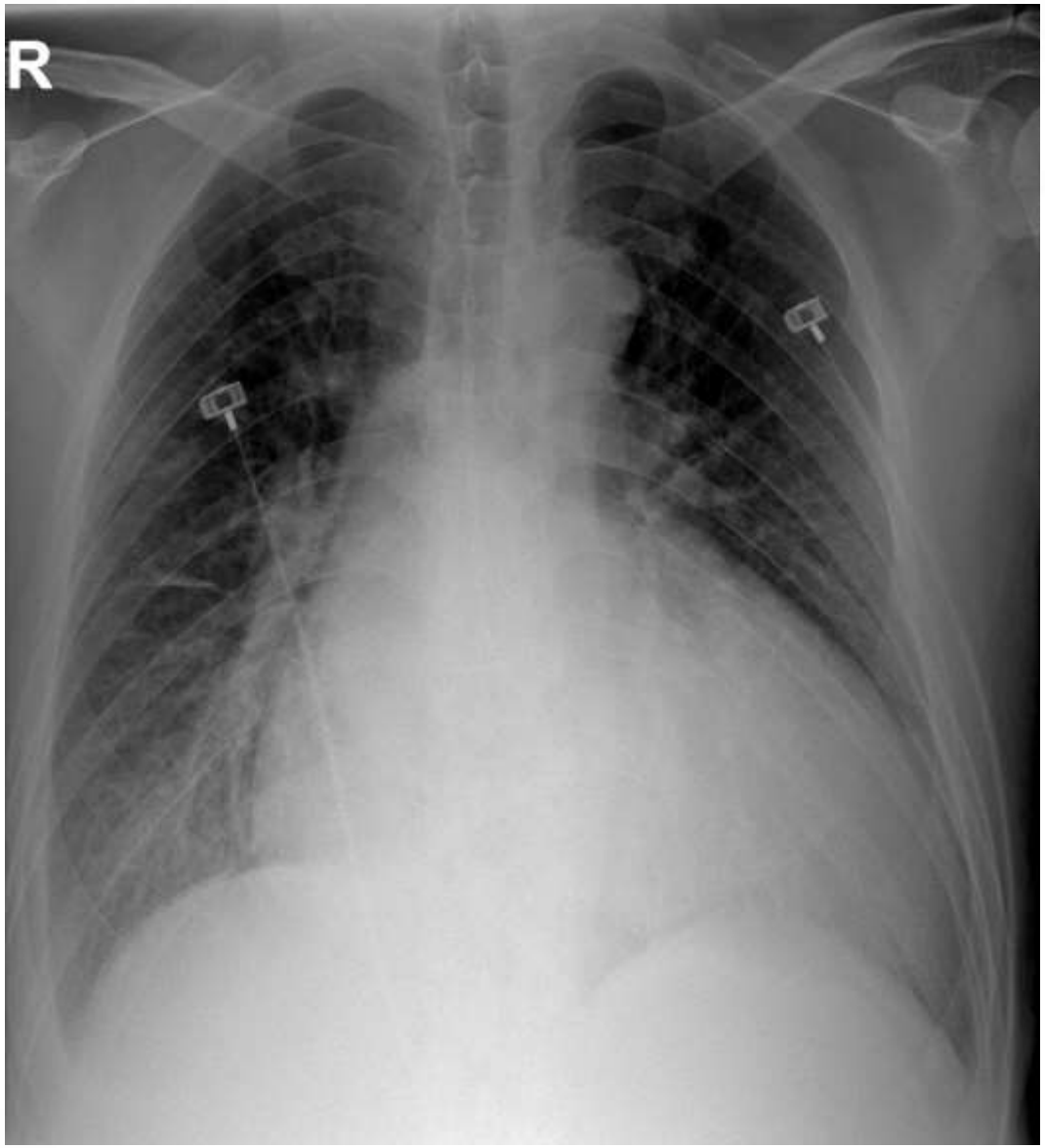
Medication

- Aspirin 100mg QD
- Clopidogrel 75mg QD
- Sacubitril/Valsartan 25mg bid
- Carvedilol 1.5625mg bid
- Spironolactone 25mg QD
- Dapagliflozin 10mg QD
- Furosemide 40mg QD
- Rosuvastatin/Ezetimibe 10/20mg QD
- Fenofibrate 160mg QD
- Ivabradine 5mg bid
- Tegoprazan 50mg QD

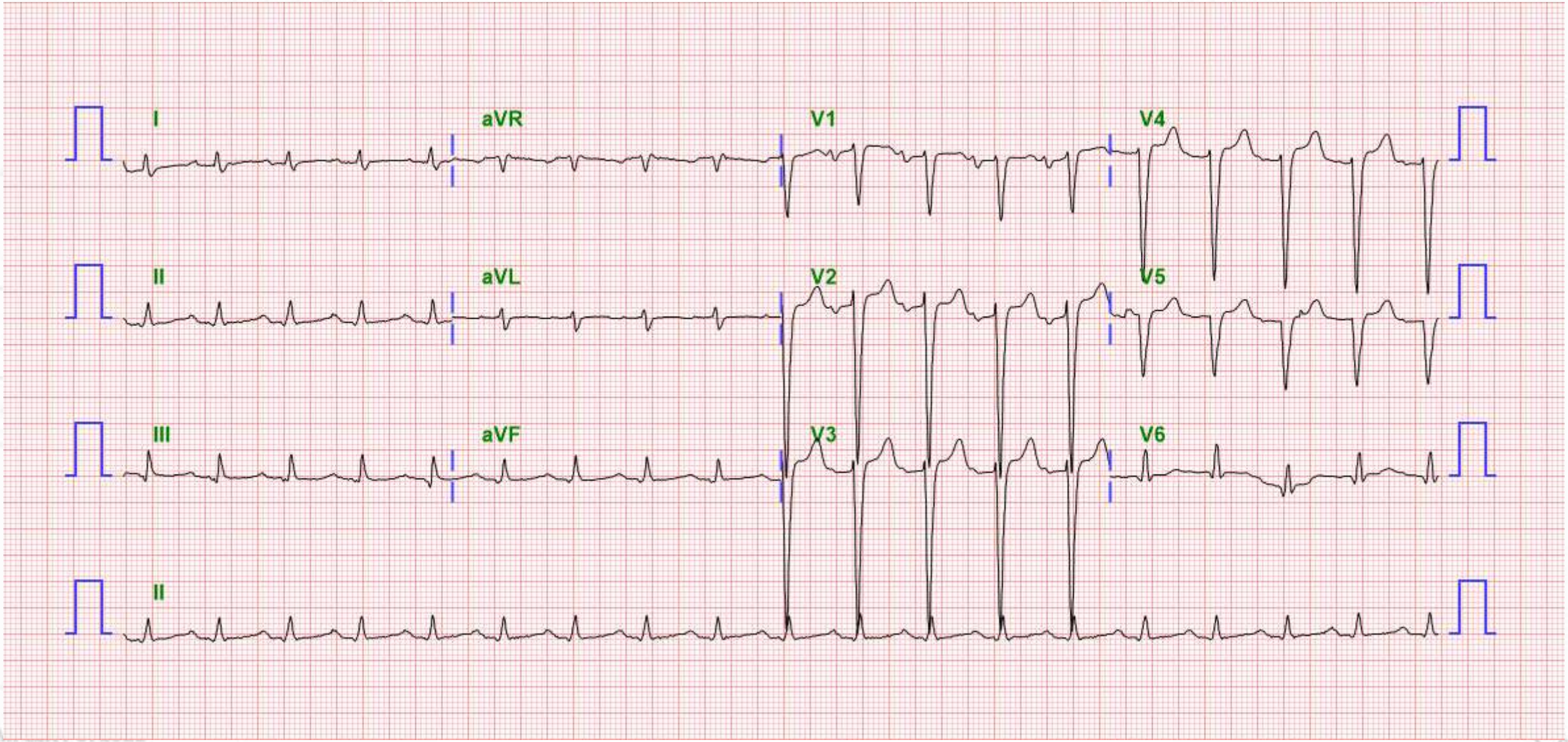
Case 2

- M/50, 180.8cm, 82.3kg, BMI 25.18 BSA 2.03
- C.C: Dyspnea
- Medical Hx
  - Asthma
- Social Hx
  - none

CXR(2022.09.09)



EKG(2022.09.09)



24-hr Holter(2022.09.15)

General

135874	QRS complex
51	Ventricular beats (0%)
5	Supraventricular beats (0%)
0.00%	of total time in AF/AFL
0.00	min total duration of AF/AFL
0.00%	of total time classified as noise

Heart Rates

77	Minimum at 12:06 PM (Day 1)
95	Average
108	Maximum at 3:21 PM (Day 1)
1.04	seconds Max R-R at 12:24 PM (Day 1)
	seconds Max Pause at
0	Bradycardia events (<50 bpm), 0% total

Ventriculars

49	Isolated
1	Couplets
0	Triplets
0	Bigeminal Cycles
0	Runs totaling 0 beats, 0% total

Supraventriculars

5	Isolated
0	Couplets
0	Triplets
0	Runs totaling 0 beats, 0% total

ST Level

-0.14 mV minimum at 10:59 PM (Day 1)
0.00 mV Average

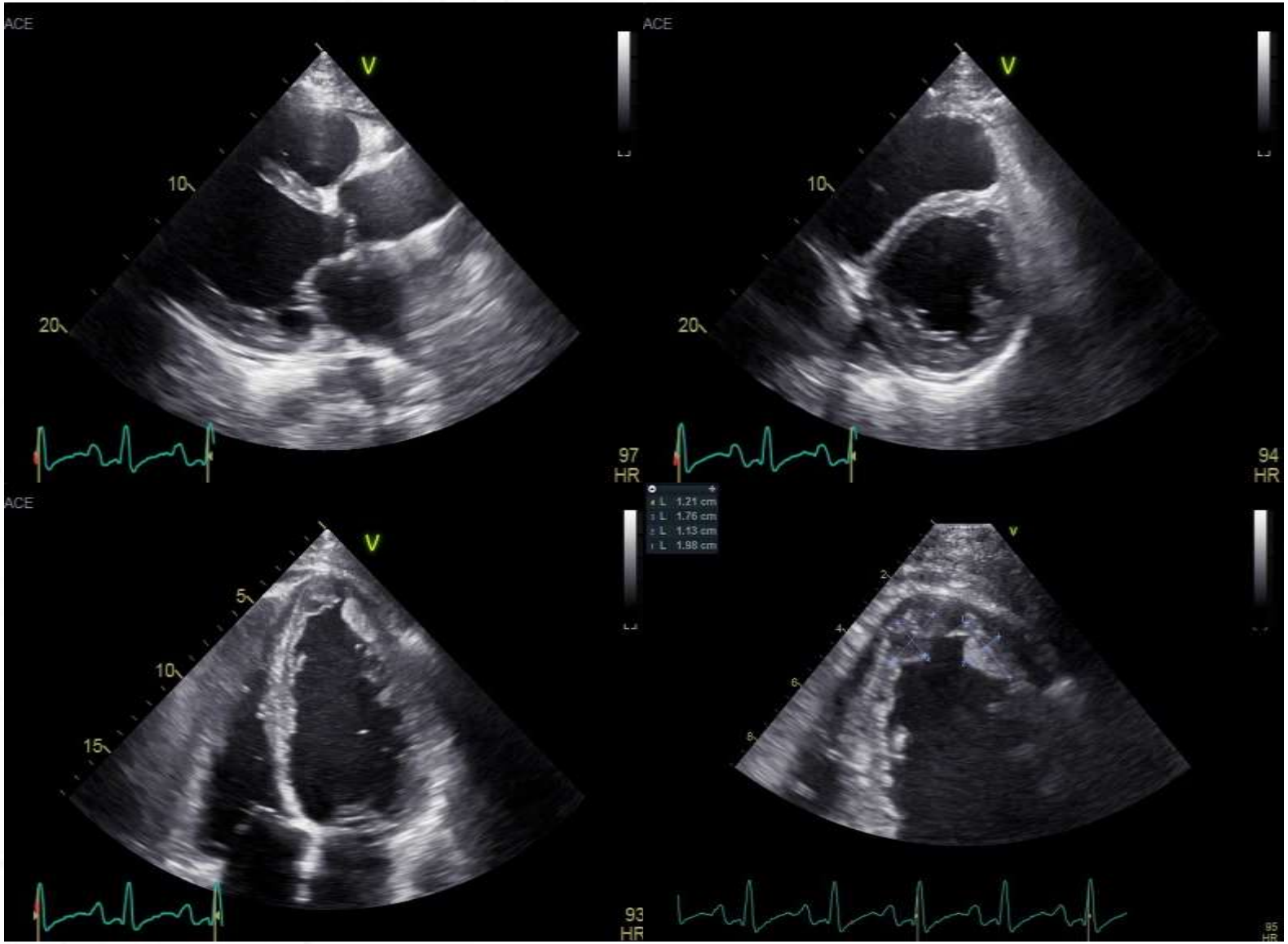
Interpretation

Interpretation

predominantly sinus rhythm
APC, VPC

9/16/2022
Sung-Won Jang M.D.

TTE(2021.10.18)



- EF 12%
- Diffuse global hypokinesia
- RVSP 32.6mmHg
- Multiple hyperechoic thrombus at LV apex

CAG(2022.09.15)

LCA c JL 5-3.5

RAO 16 CRA 27

LAO 34 CRA 27

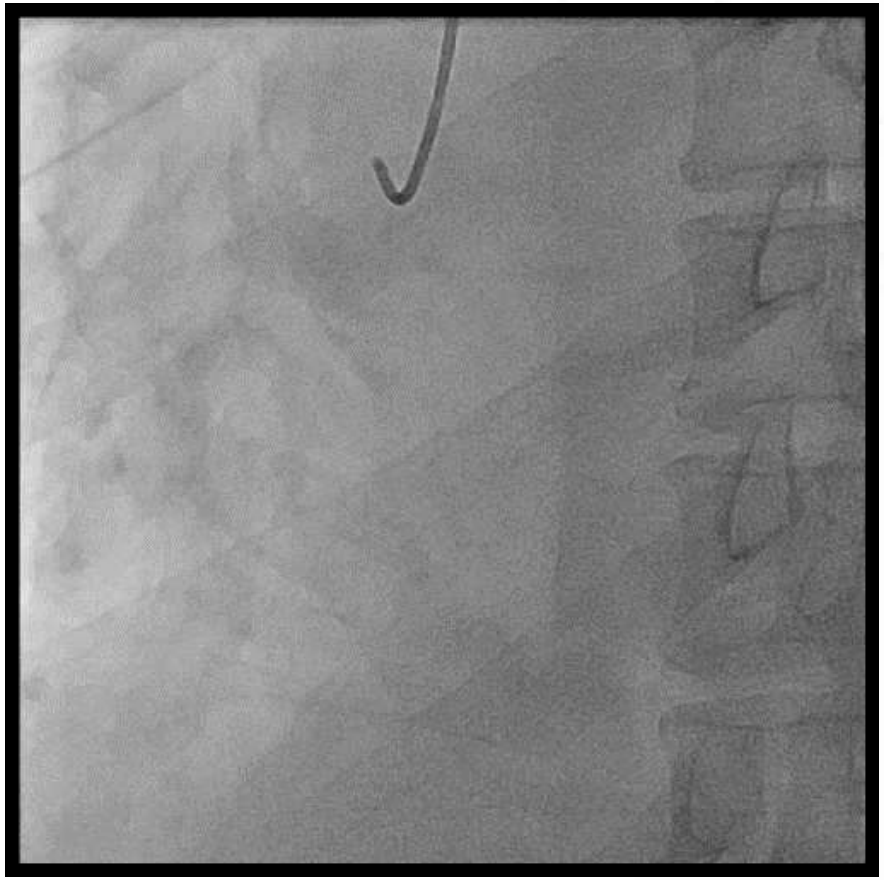
COMPLEX PCI 2022
MAKE IT SIMPLE: TECHNICAL FORUM A TO Z
CVRF

CAG(2022.09.15)

LCA c JL 5-3.5

RAO 25 CAU 20

RCA c JR 5-4



LAO 31

Medication

- Sacubitril/Valsartan 50mg bid
- Bisoprolol 1.25mg QD
- Spironolactone 12.5mg QD
- Empagliflozin 10mg QD
- Furosemide 20mg bid
- Clopidogrel 75mg QD
- Atorvastatin/Ezetimibe 10/20mg QD
- Ivabradine 5mg bid
- Digoxin 0.25mg QD
- Warfarin 4mg QD
- Tegoprazan 50mg QD

Discussion Points

- What improved case 1 patient's heart function?
  - CTO intervention
  - HF medication
  - Improvement the patient's lifestyle
- What are somethings that we have to keep in mind during PCI for severe HF patients?
- When shoud I do the PCI for case 2 patients?

Conclusion

- In HF patients, we have to proceed the PCI very carefully.
- It is important to determine the PCI at the appropriate time.
- Pre-/Post HF medication prescription are very important, too.