Case 2: INOCA physiology workup

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Disclosure

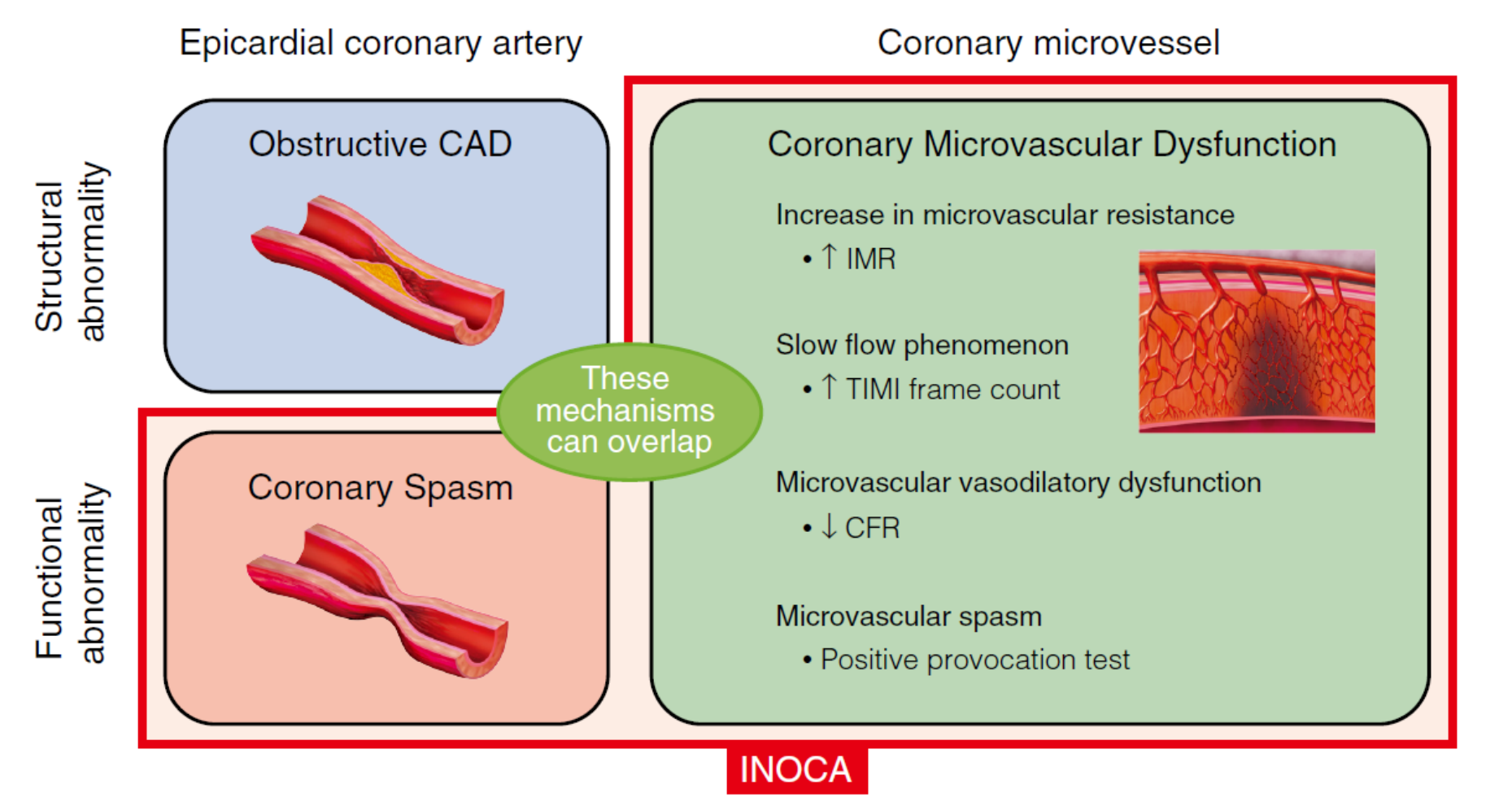
Speaker's name: Hitoshi Matsuo M.D. PhD.,

I have the following potential conflicts of interest to report in the field of this presentation:

Speaker at educational events and consultancies for:

Abbott medical Japan, Phillips, Boston Scientific Japan, Zeon Medical Japan, Kaneka, Nippon Mediphysics, Amgen Biopharma.

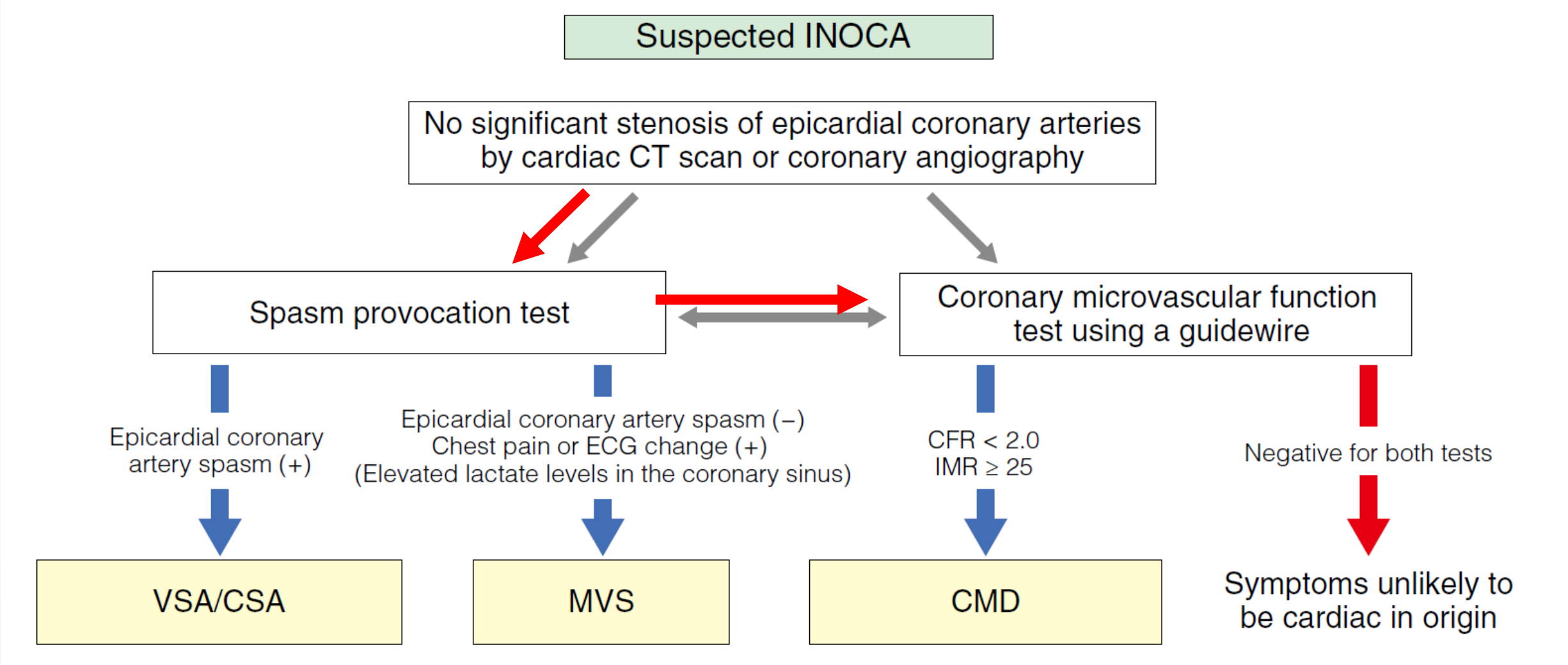
JCS/CVIT/JCC 2023 Guideline Focused Update on Diagnosis and Treatment of Vasospastic Angina and Coronary Microvascular Dysfunction



Ischemic mechanisms can be divided into functional or structural abnormalities of epicardial coronary arteries or coronary microvessels.

Hokimoto S et al.Circ J. 2023 May 25;87(6):879-936.

Procedure to reveal the endotype of INOCA by invasive assessment methods.



Interventional diagnostic procedures, including spasm provocation tests and coronary microvascular function tests using pressure wire, are key for differentiating the mechanisms underlying INOCA.

Hokimoto S et al.Circ J. 2023 May 25;87(6):879-936.

Physiology Case-2

Dr. Hitoshi Matsuo
(Gifu Heart Center)
Dr Kyoko Umezu
(ShinKoga Hospital, Fukuoka Japan)

The courtesy by Tomohiro Kawasaki MD,PhD（Shinkoga Hospital）

Case : 80’ female

Diagnosis: possible INOCA

Chief complaint: chest discomfort on exertion since 2 years ago

Present illness:

Recently, the frequency of chest discomfort seemed to be increasing, and the patient was referred for consultation.

Coronary risk factor: hypertension, dyslipidemia, former smoker

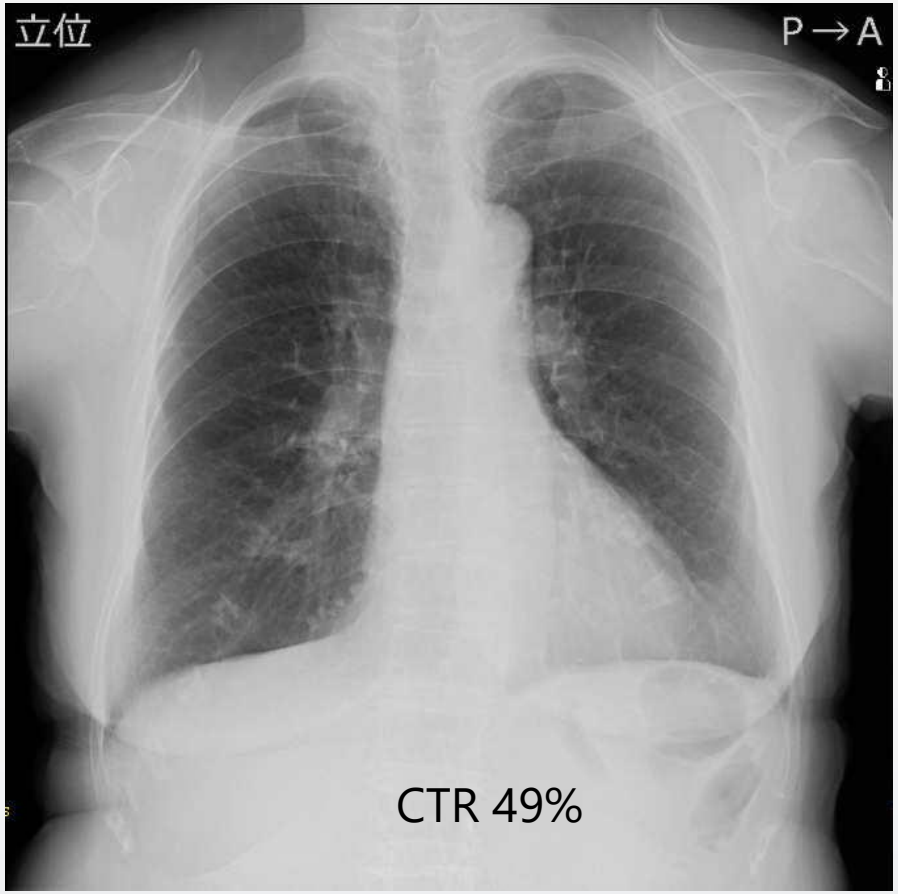
Medication:none

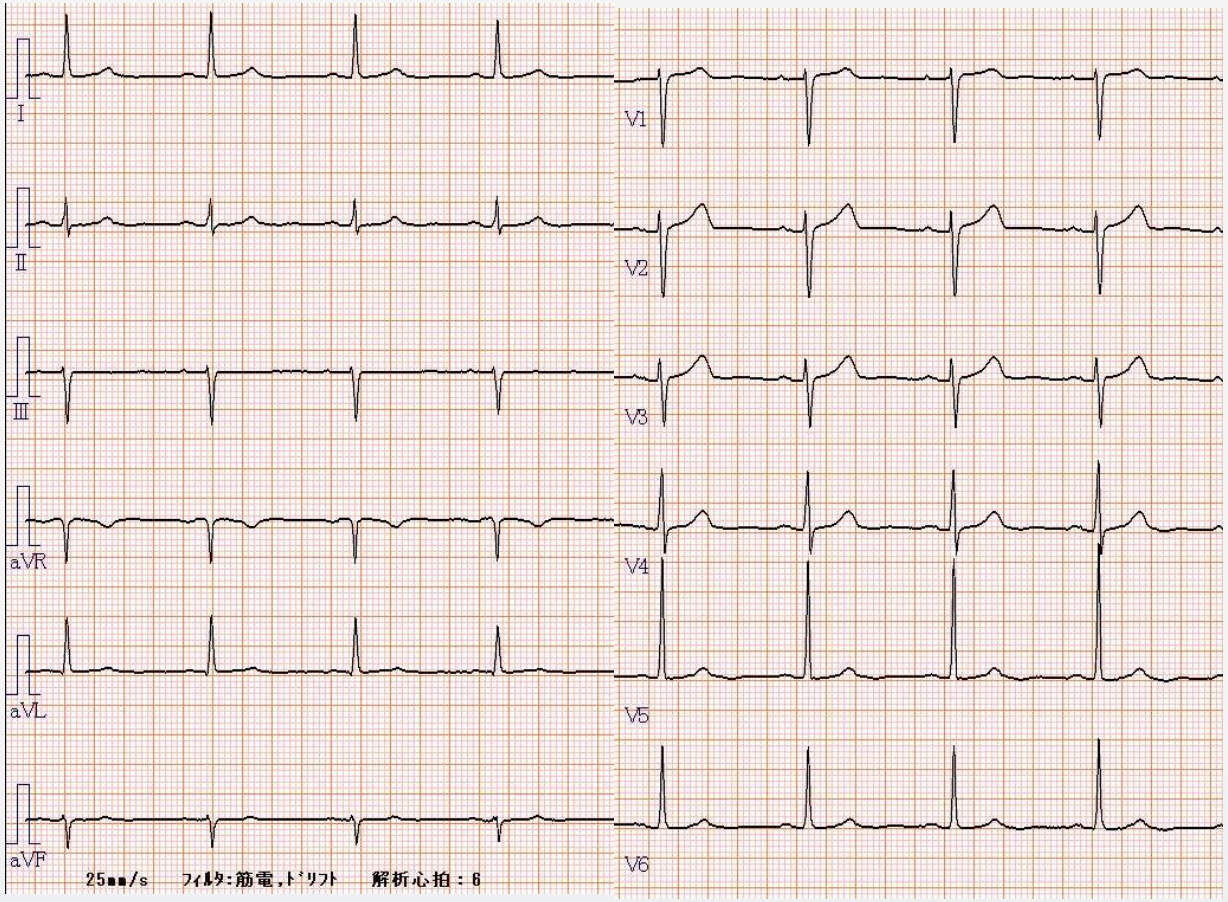
Labo. Data:

LDL-C 121mg/dl, HDL-C 62mg/dl, L/H 2.0, HbA1c 6.1%,

Cr 0.59mg/dl, eGFR 71.8 ml/min/1.73m^2

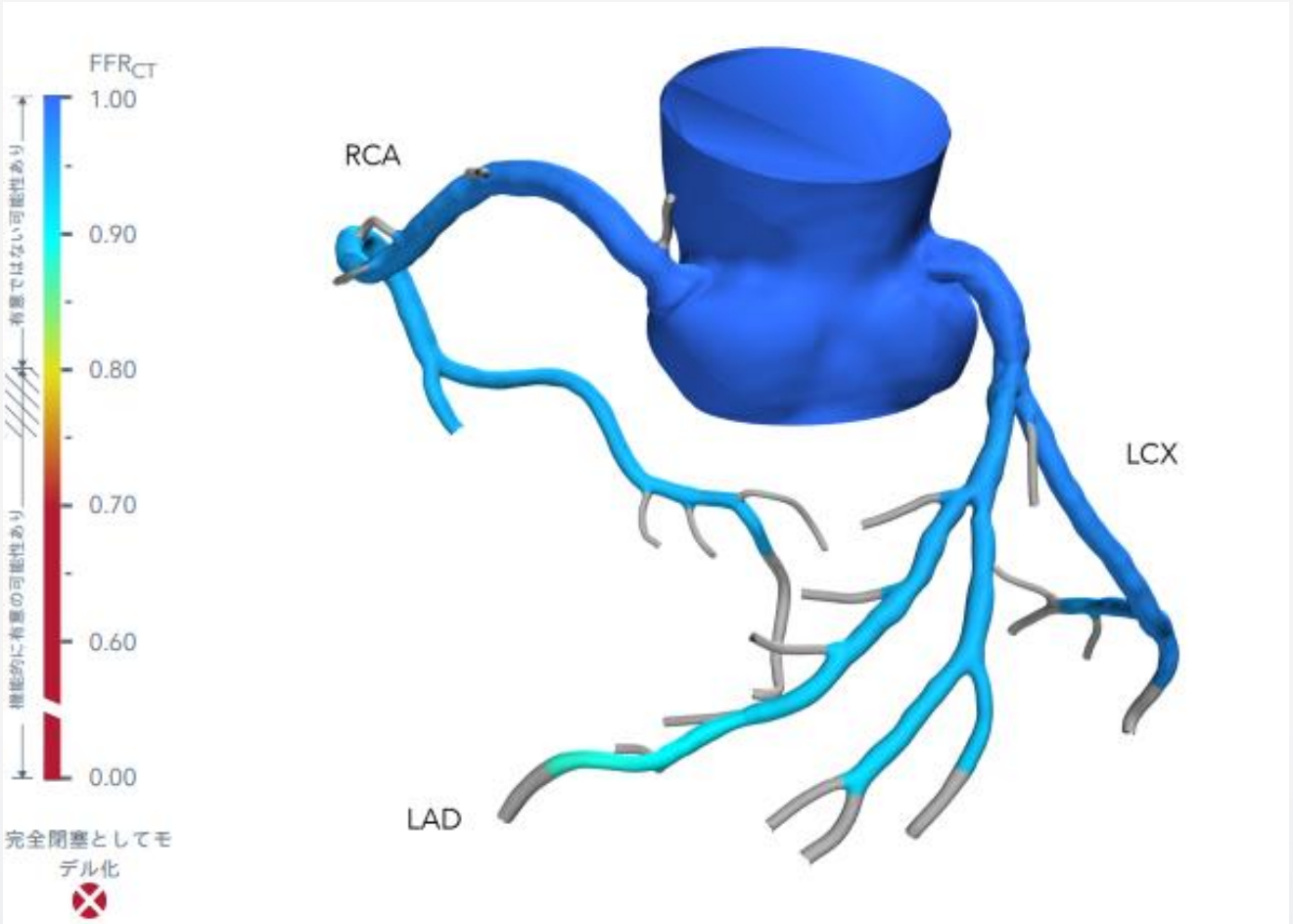
Chest X-ray & ECG

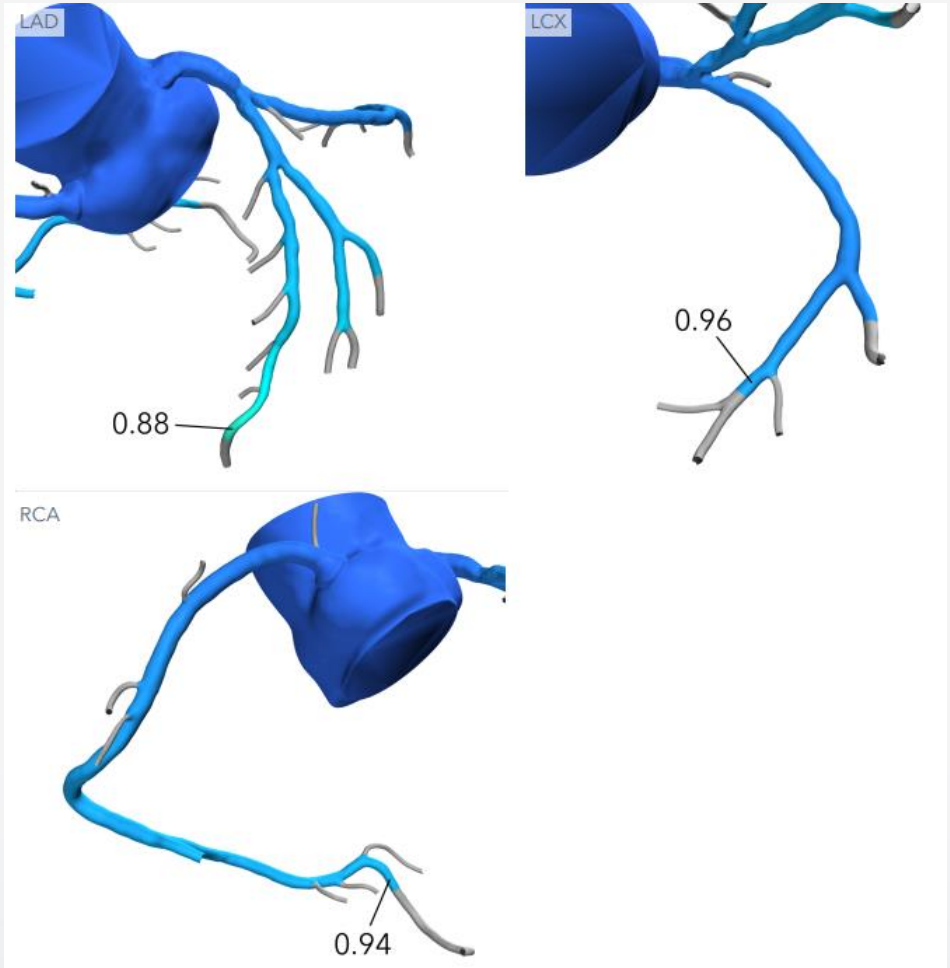




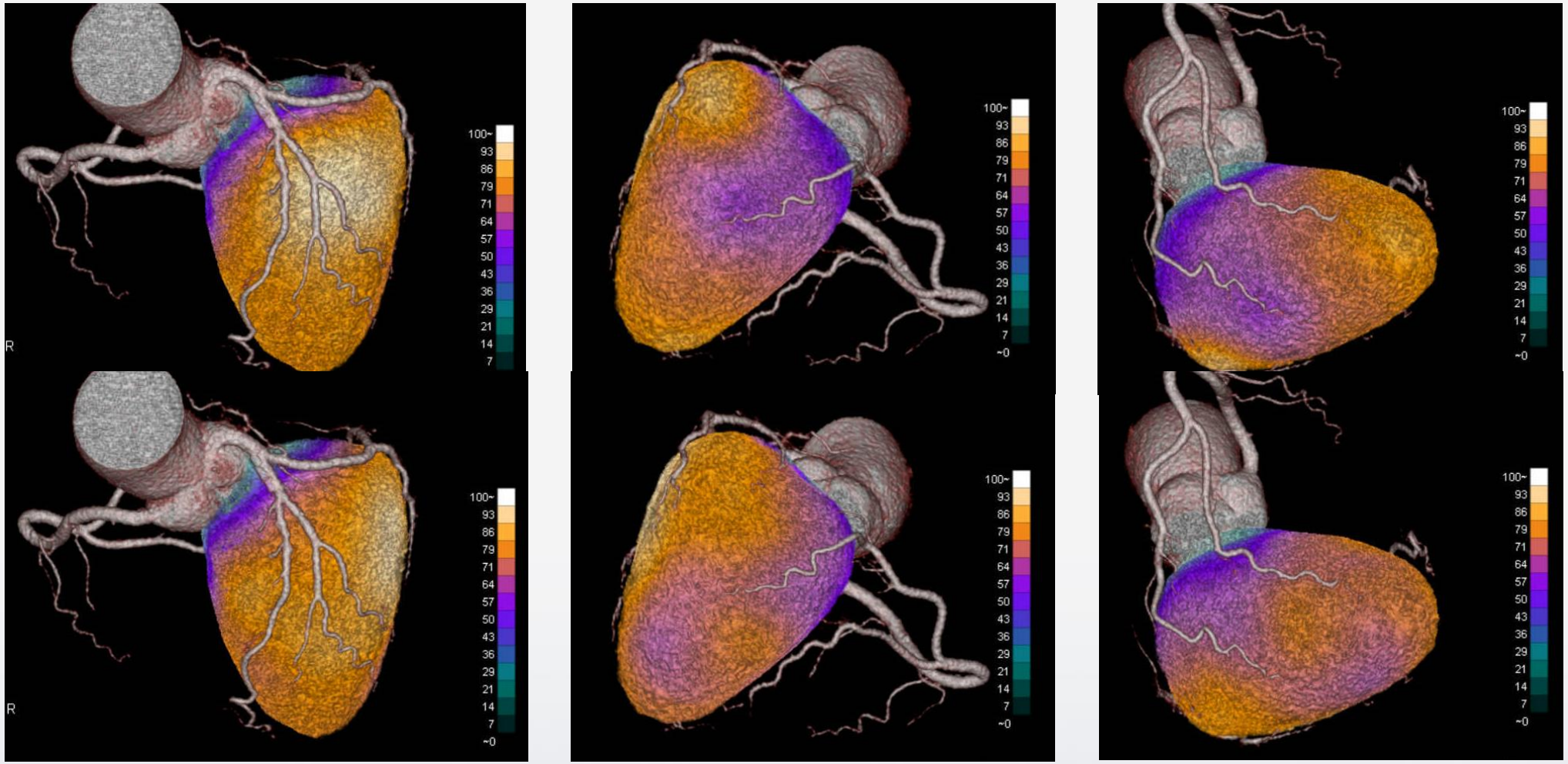
Coronary CT angiography

FFR_{CT}

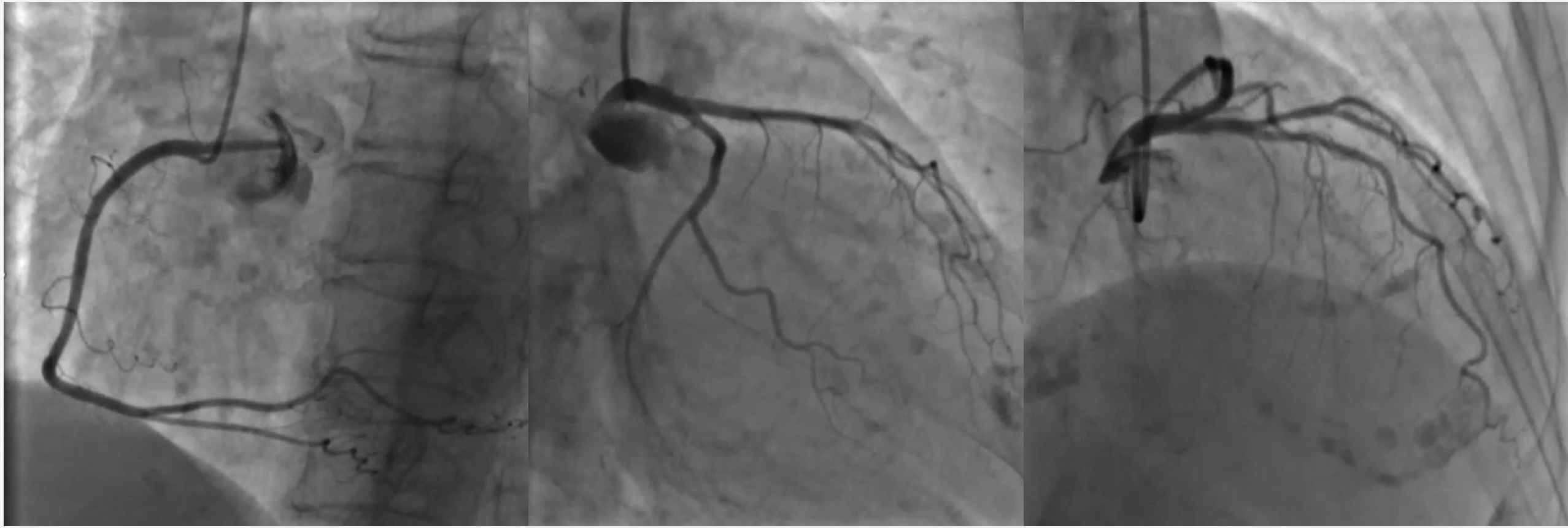

FFRCT
1.00
0.90
0.80
0.70
0.60
0.00
機能的に有意の可能性あり
有意ではないが可能性あり
完全閉塞としてモデル化
RCA
LCX
LAD


LAD
0.88
LCX
0.96
RCA
0.94

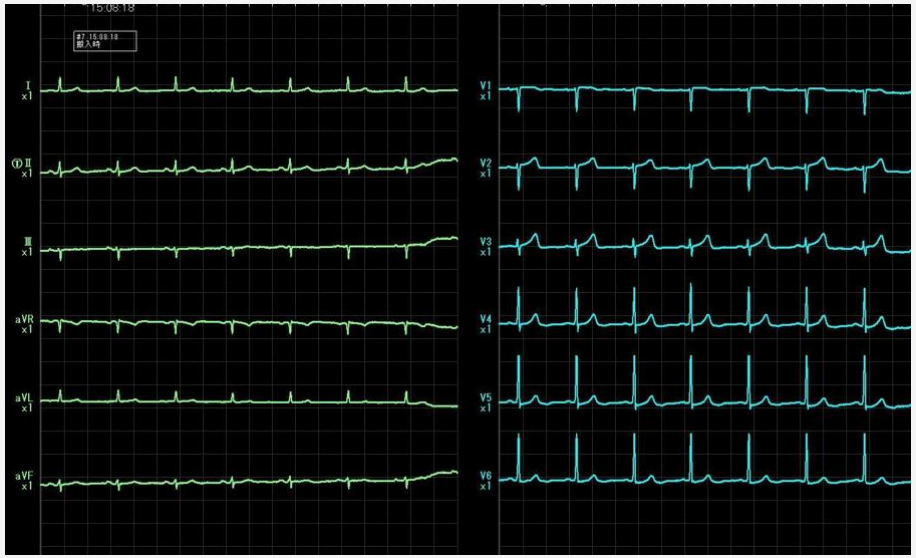
SPECT/CT fusion image



ICP　：step1 Ach provocation test to LCA

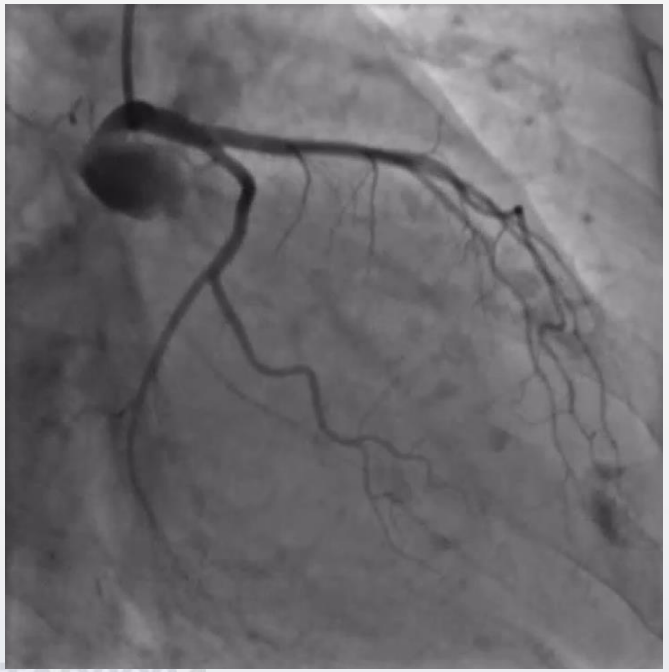


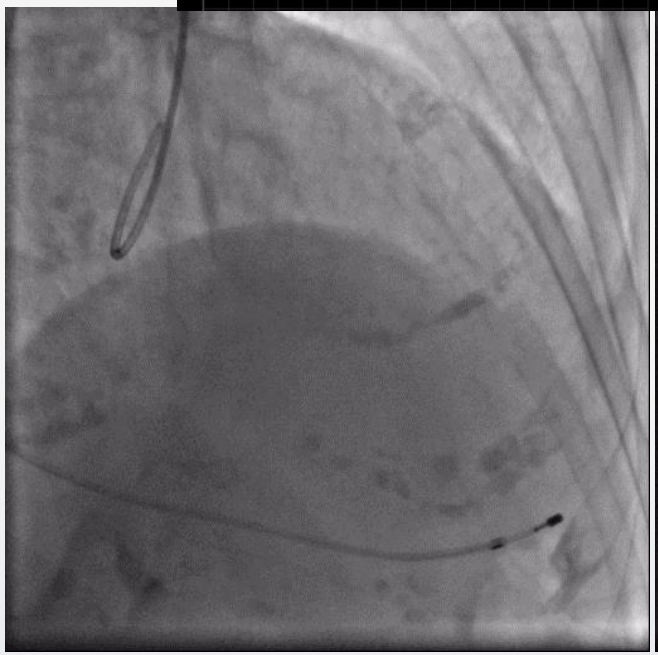
ICP : step1 Ach provocation test to LCA

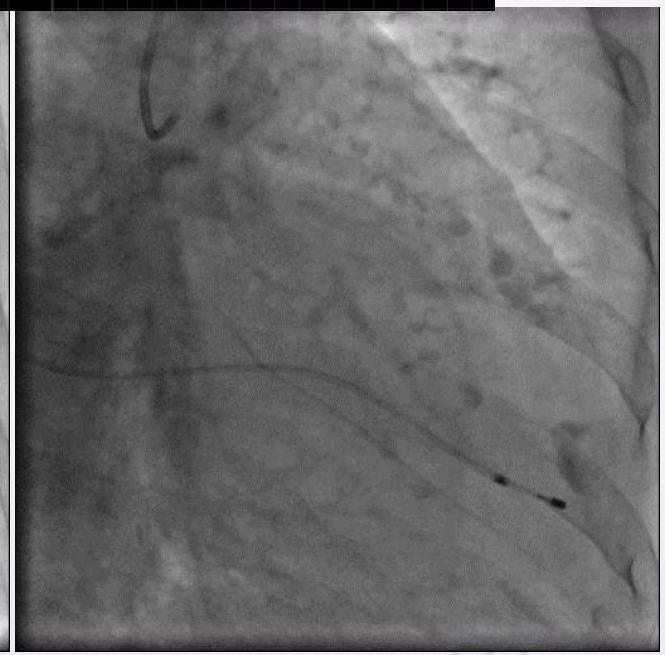


Ach 20μg ic
Ach 50μg ic
Ach 100μg ic

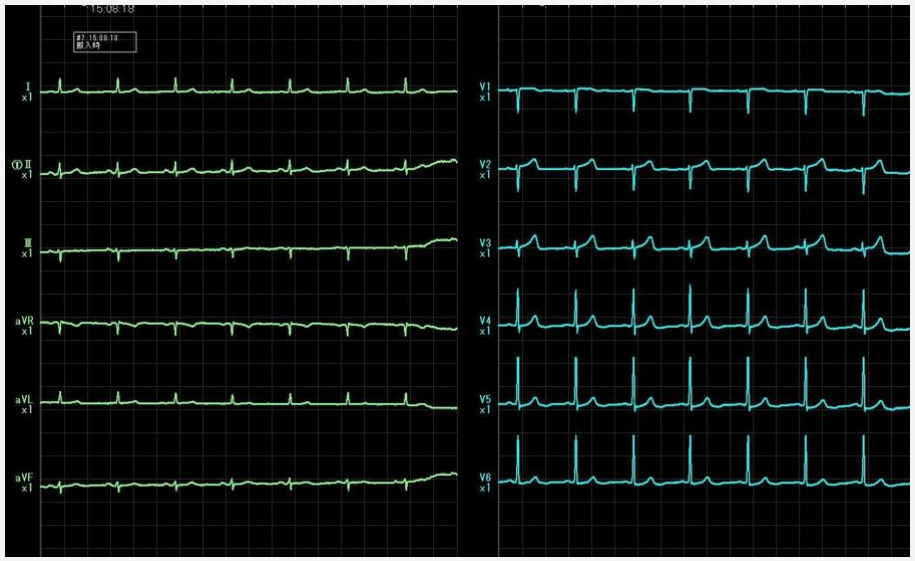
Throat discomfort





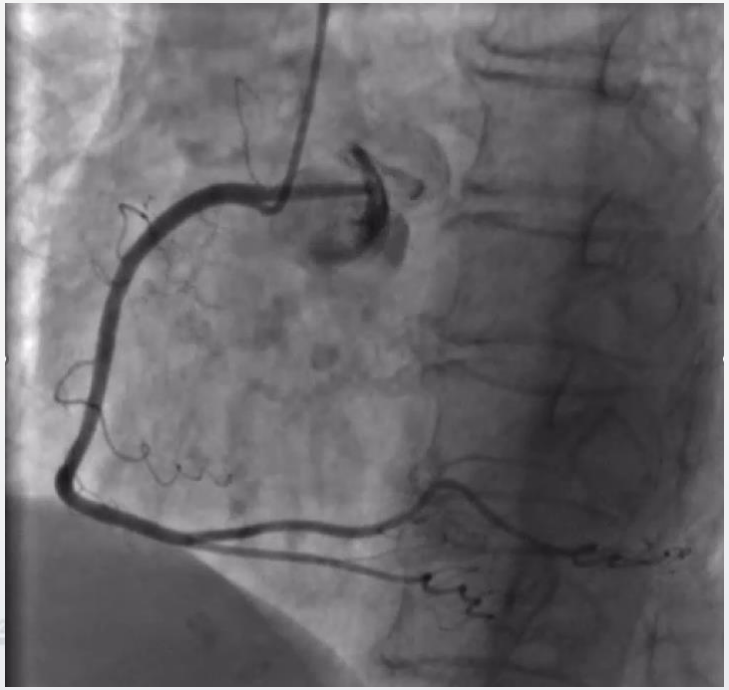


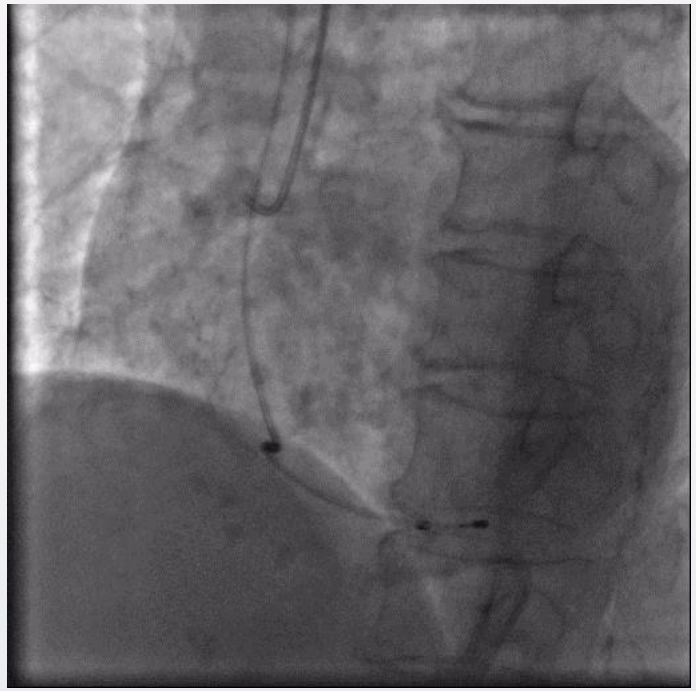
ICP　：step2 Ach provocation test to RCA



Ach 20μg ic
Ach 50μg ic

No chest pain





IDP：step4 MVA check to RCA

IDP：step3 MVA check to LAD

Summary of this case

- LCA ： Ach provocation test ➡Microvascular spasm

  CMD test ➡CFR normal IMR normal ➡Microvascular spasm

- RCA：Ach provocation test ➡negative

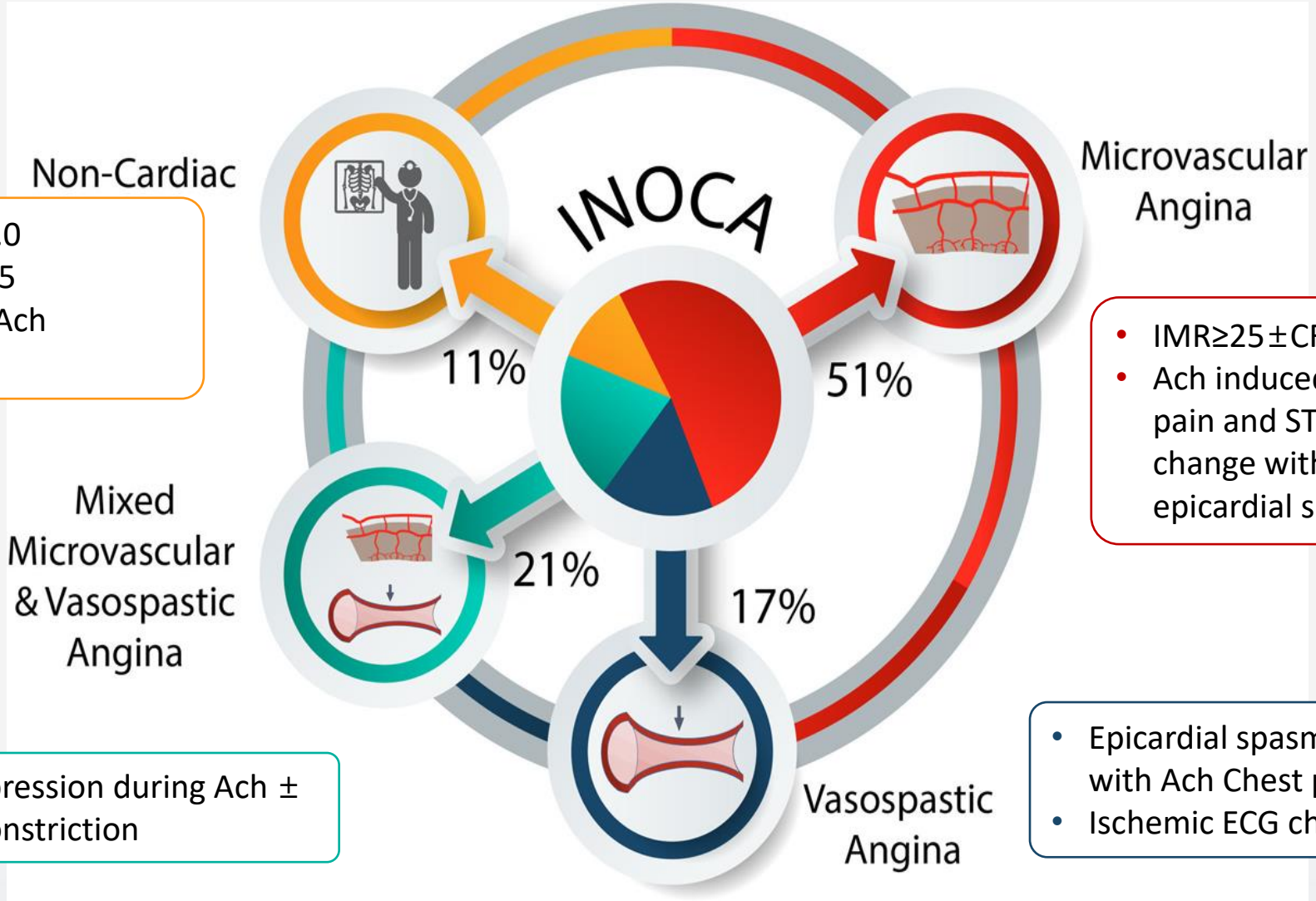
  CMD test ➡ CFR normal IMR abnormal ➡CMD (structural)???

Diagnosis: Microvascular angina due to microvascular spasm in LAD

and abnormal microvascular resistance of RCA

Medication statin therapy➡Chest pain is well controlled.

INOCA: Correlates of Coronary Vasomotion Disorders



- CFR≥2.0
- IMR<25
- NEGATIVE Ach

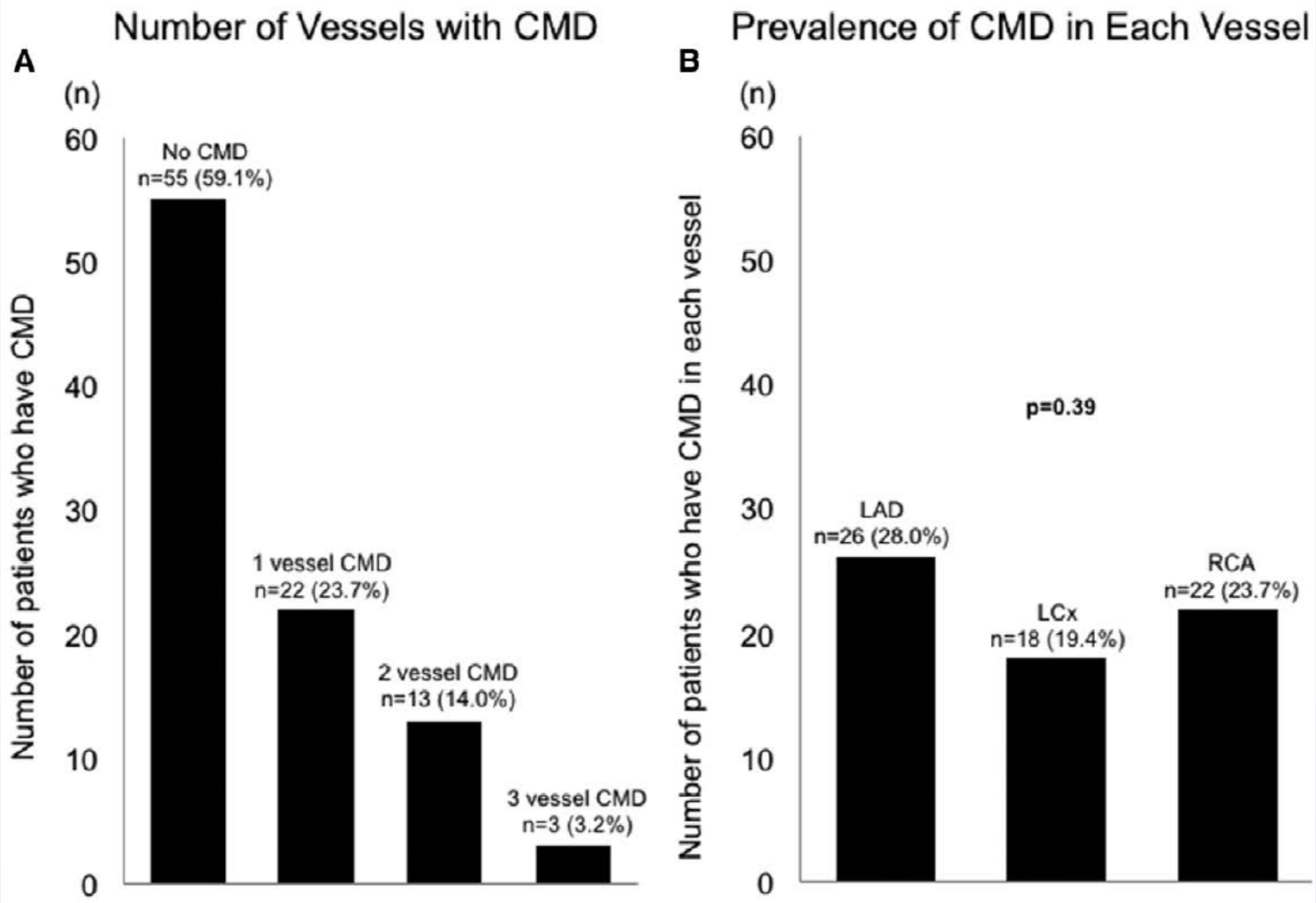
- IMR≥25±CFR<2.0
- Ach induced chest pain and ST change without epicardial spasm

- Angina with ST depression during Ach ±
- Epicardial artery constriction

- Epicardial spasm (>90%) with Ach Chest pain
- Ischemic ECG changes

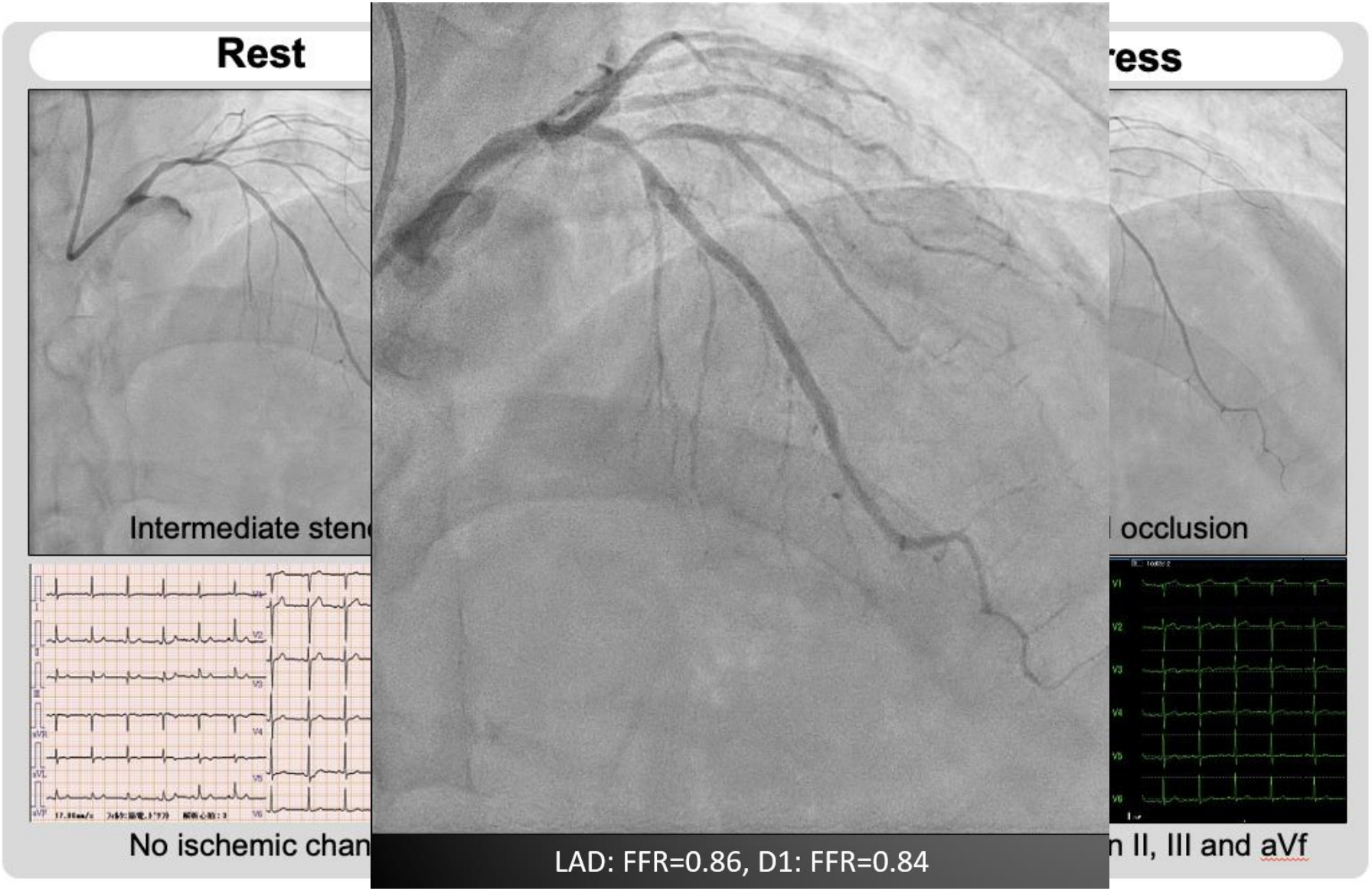
Adapted from TJ Ford Circulation Cardiovascular Interventions 2019

Prevalence of coronary microvascular dysfunction in three vessels and in each vessel.



Kobayashi Y et al. *Circ Cardiovasc Interv*. 2017;10:e005445.

Spasm provocation by handgrip exercise (half of pt's maximum grip strength)



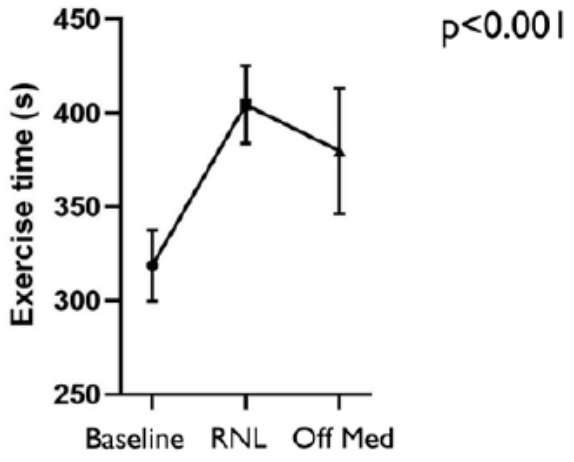
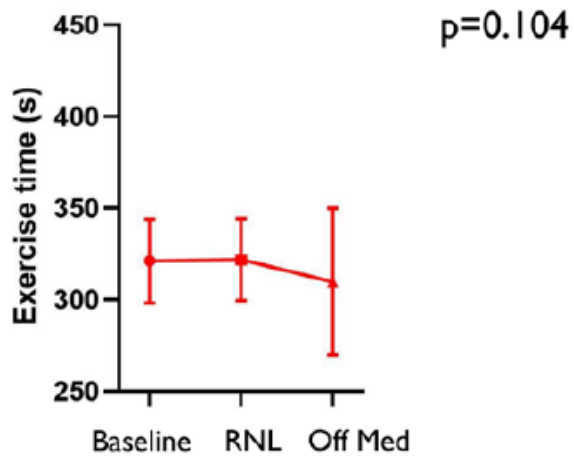
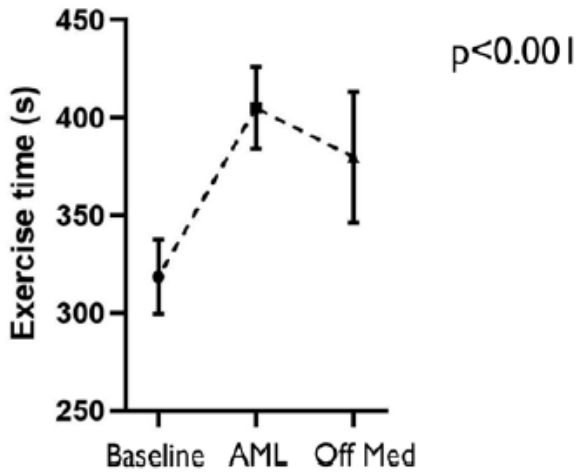
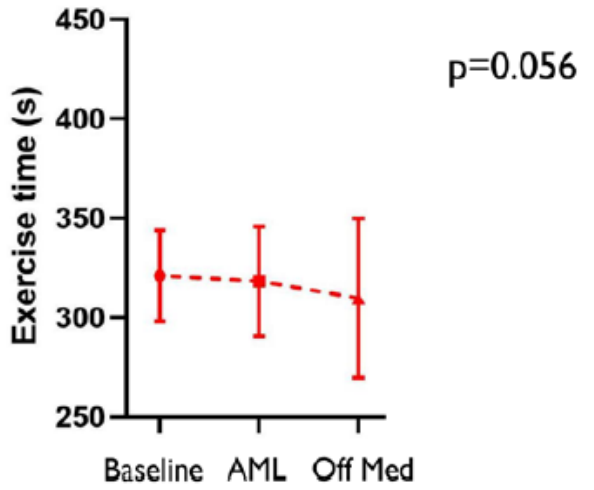
Kawase Y, Matsuo H et al. Eur Heart J Case Rep. 2024 Jan 5;8(1):ytad638.

ORIGINAL RESEARCH ARTICLE

ChaMP-CMD: A Phenotype-Blinded, Randomized Controlled, Cross-Over Trial

Aish Sinha, MBBS; Haseeb Rahman, BMBCh, PhD; Abdel Douiri, PhD; Ozan M. Demir, MBBS, PhD; Kalpa De Silva, MBBS, PhD; Brian Clapp, MBBS, PhD; Ian Webb, BMBCh, PhD; Ankur Gulati, BMBS, MD; Pedro Pinho, BSc; Utkarsh Dutta, MSc; Howard Ellis, BSc; Ajay M. Shah, MBBS, MD; Amedeo Chiribiri, MBBS, PhD; Michael Marber, MBBS, PhD; Andrew J. Webb, MBBS, PhD; Divaka Perera, BMBCh, MD

ChaMP-CMD

	CMD	Reference
Ranolazine		
Amlodipine		

Conclusion

- Interventional diagnostic procedures for patients with Ischemia and No Obstructive Coronary Artery Disease (INOCA) can provide valuable insights into the underlying causes of symptoms and ischemia in these individuals.
- These procedures can help guide management decisions and optimize treatment strategies for patients with ischemic symptoms and non-obstructive coronary artery disease.