

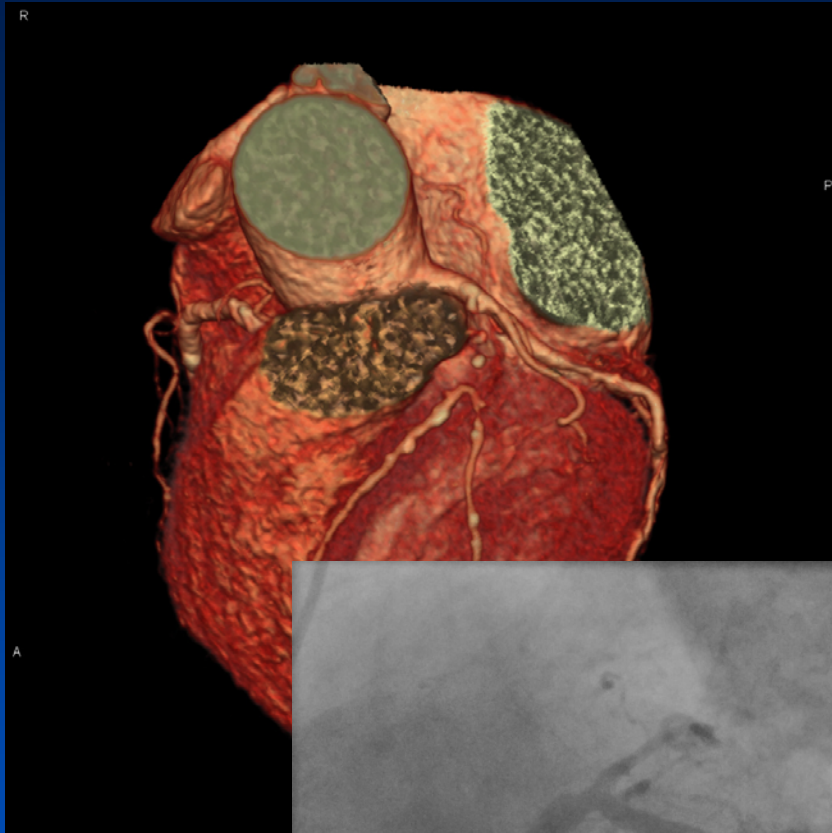
How and Why CTO ?

*Passion, Confidence, Success,
and Happiness*

Seung-Whan Lee, MD, PhD,

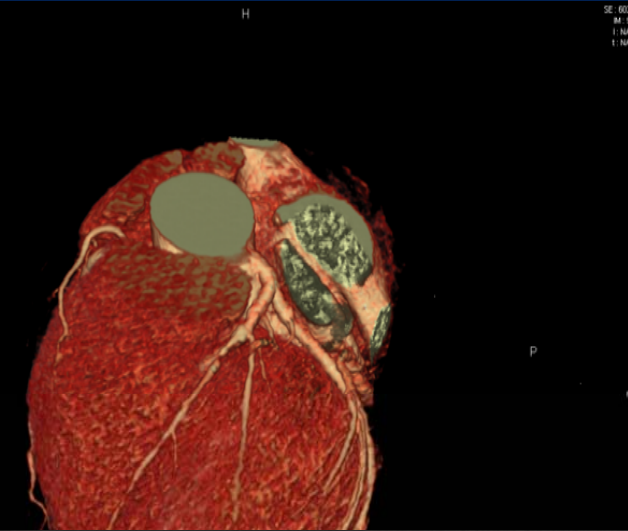
Asan Medical Center,
University of Ulsan College of Medicine, Seoul, Korea

CTO LIVE 2010

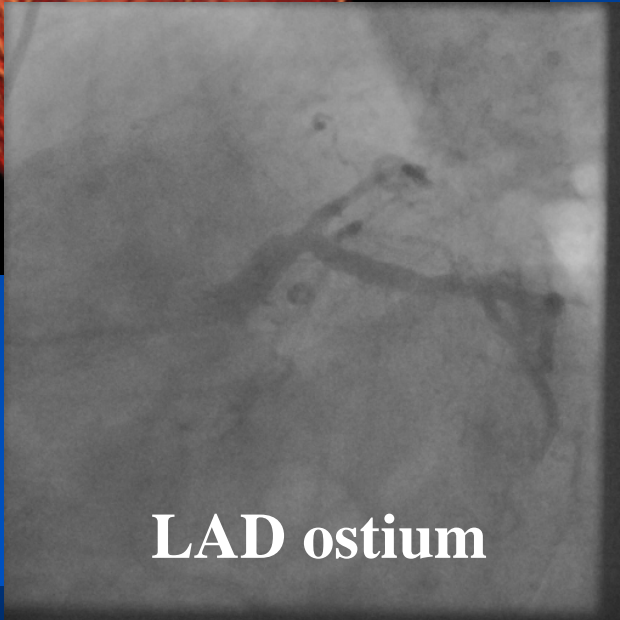


Asan Medical Center
2011191 804
CHC 500 YEON
20091223 1947

RV NA
RA NA
RAC 0.00
RAG 0
1024 X 1024



SE 400
M: 0
I: NA
T: NA



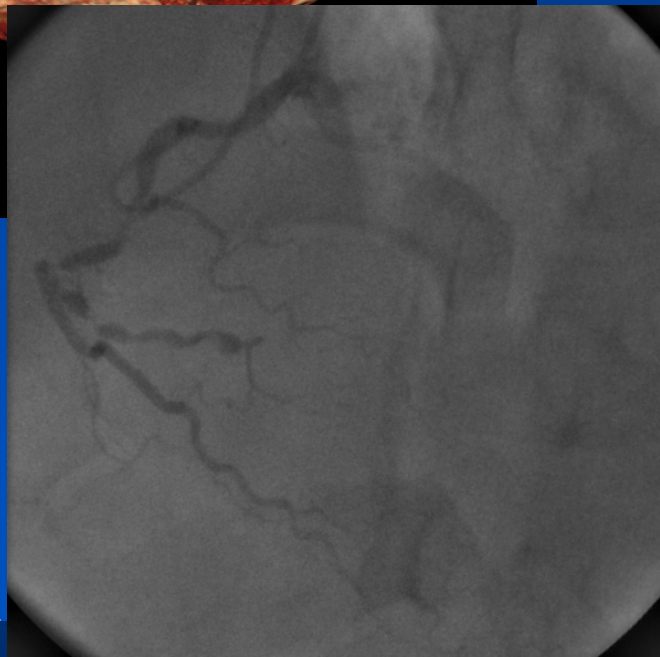
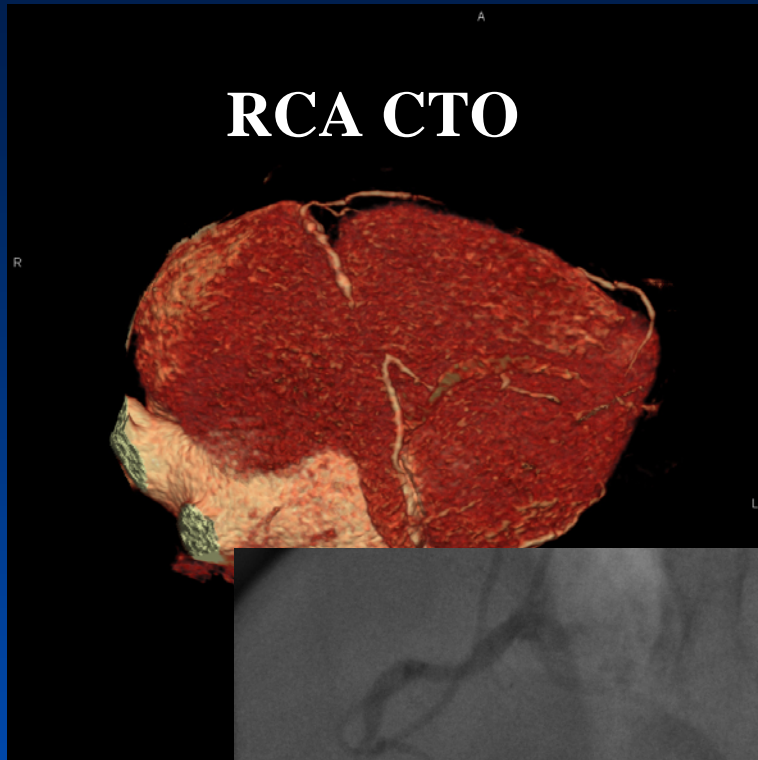
LAD ostium



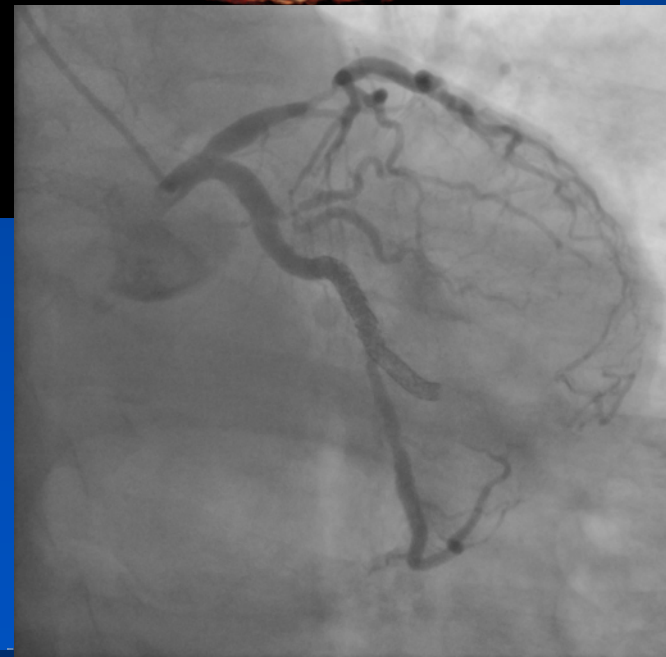
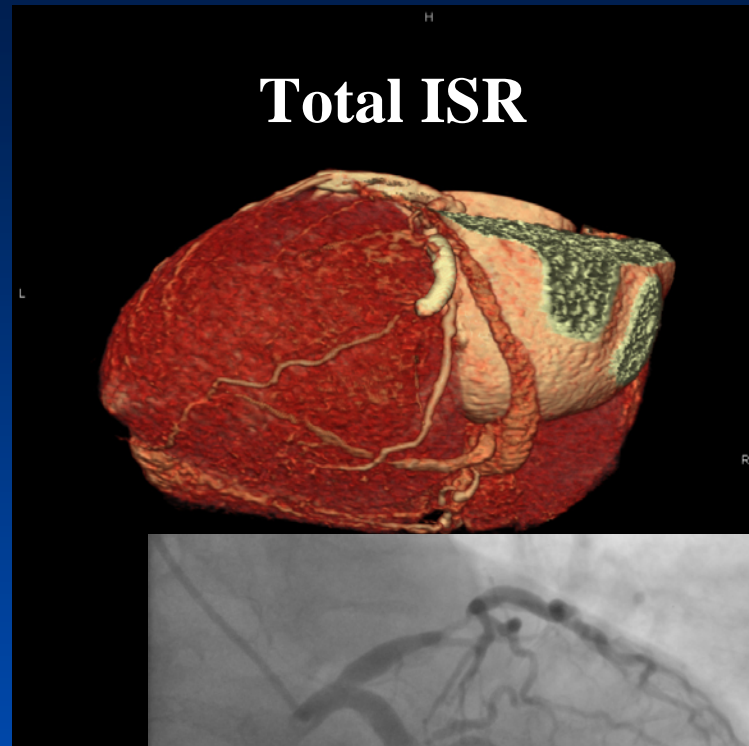
mid LAD

CTO LIVE 2010

RCA CTO



Total ISR



CTO LIVE 2010



Old aged CTO

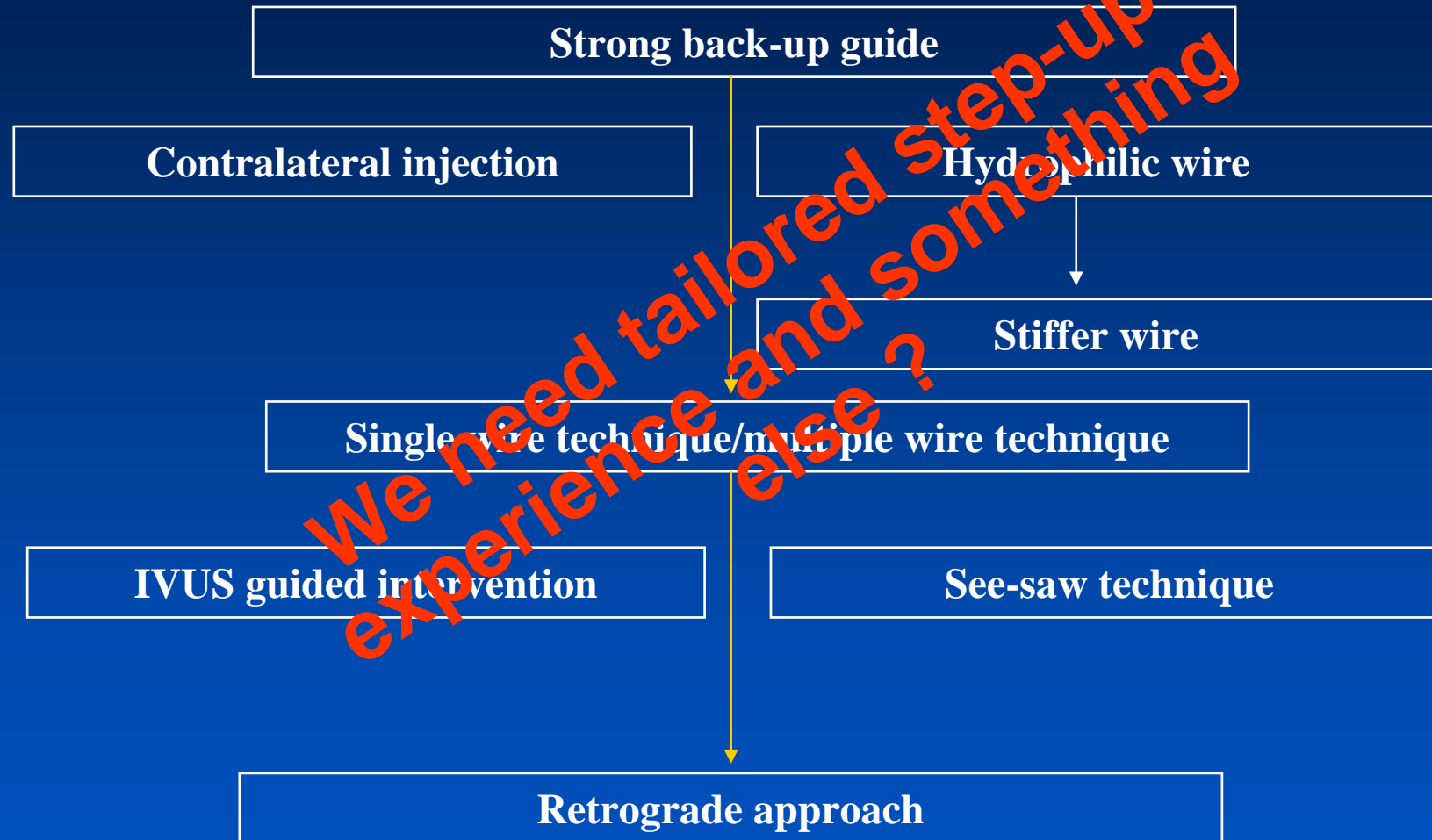


Failed total with CRF

CTO LIVE 2010

- **Specialized wires**
 - Hydrophilic (Whisper, PT Graphics, Pilot, Terumo, Shinobi)
 - Cross-IT XT family
 - Enhanced force and torque (Miracle and Confianza)
- **Dual (contralateral) injection**
- **Parallel wire and see-saw techniques**
- **Lumen re-entry (STAR)**
- **IVUS guidance**
- **Tornus/Corsair (channel dilator)**
- **Retrograde (collateral) approach**
- **Novel devices: SafeCross, Frontrunner, Crosser, Crossboss**

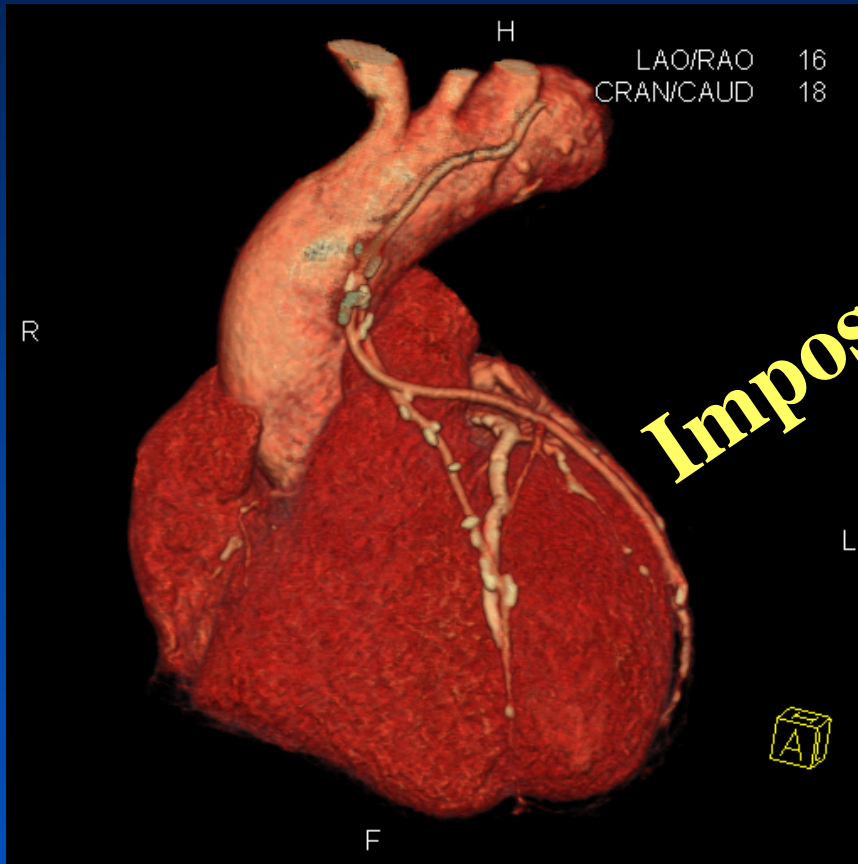
Suggested algorithm for CTO-PCI



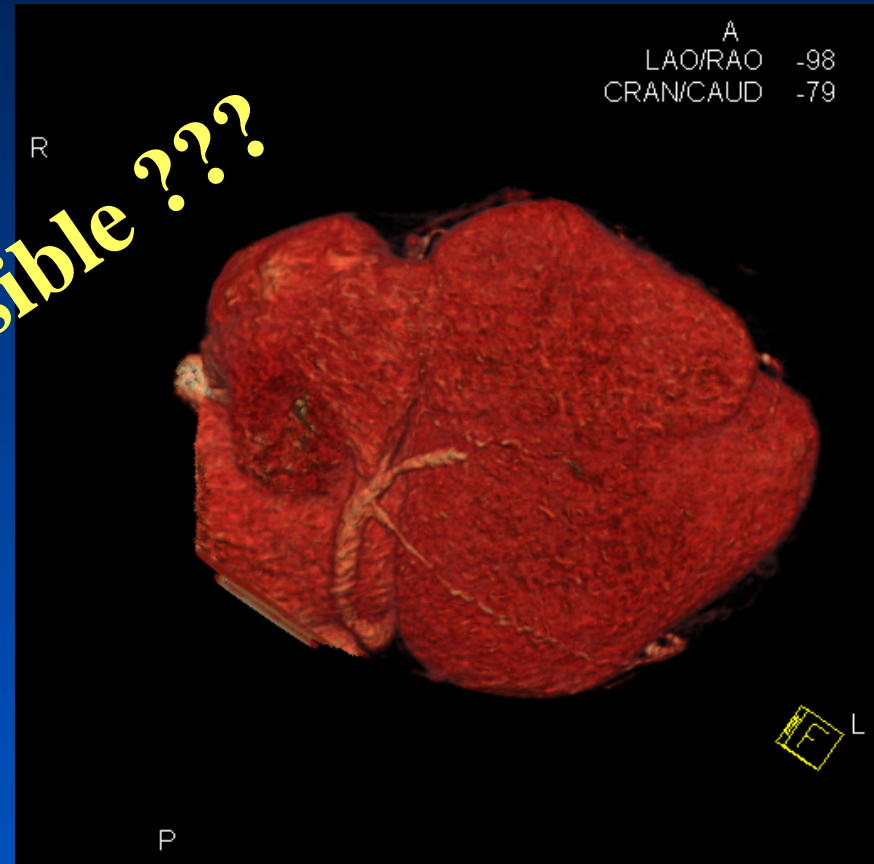
We need tailored step-up experience and something else?

M/54 RCA long CTO

TMT stage 2 positive

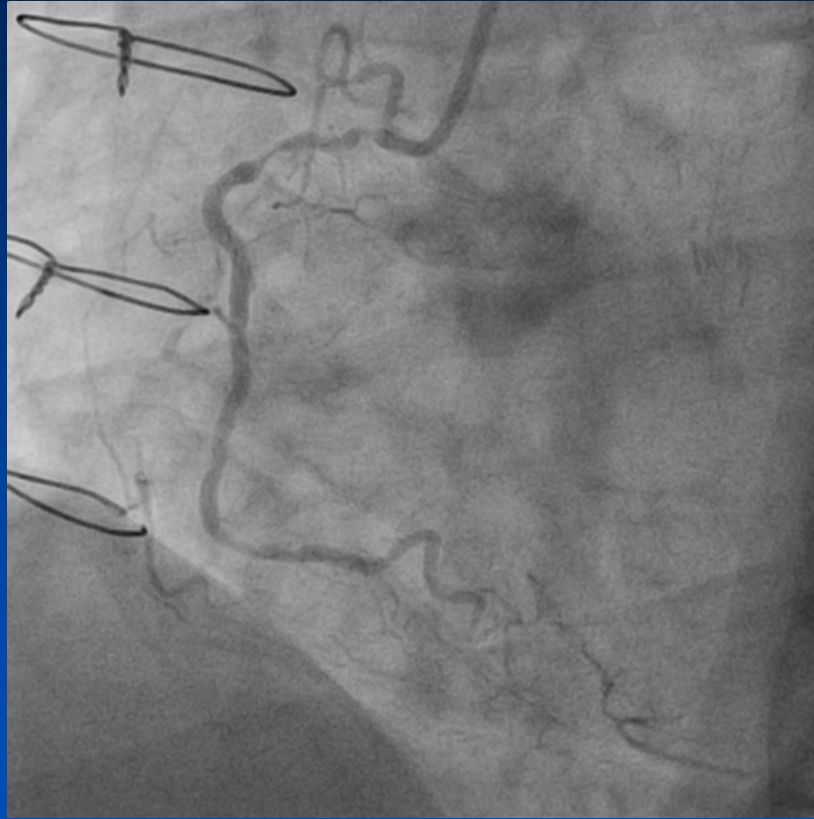


pRCA CTO



Poor dRCA visualization

How-Passion

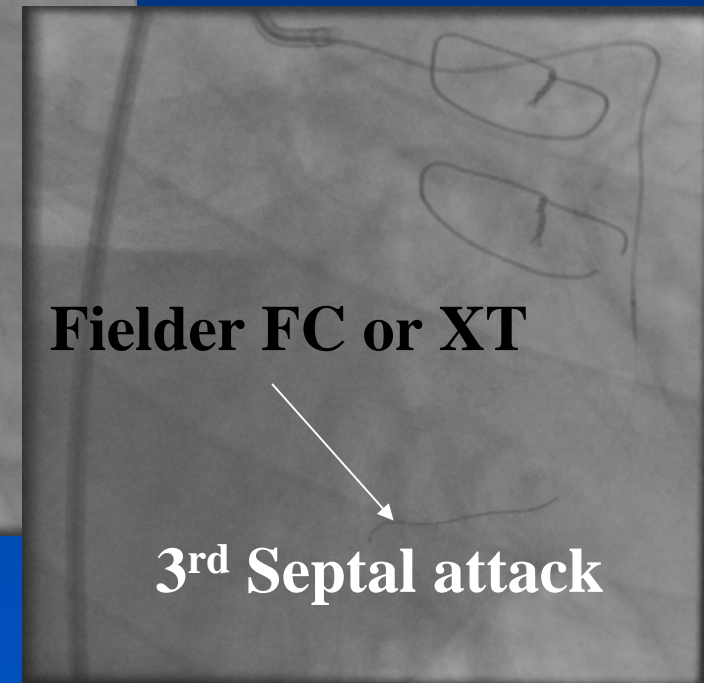
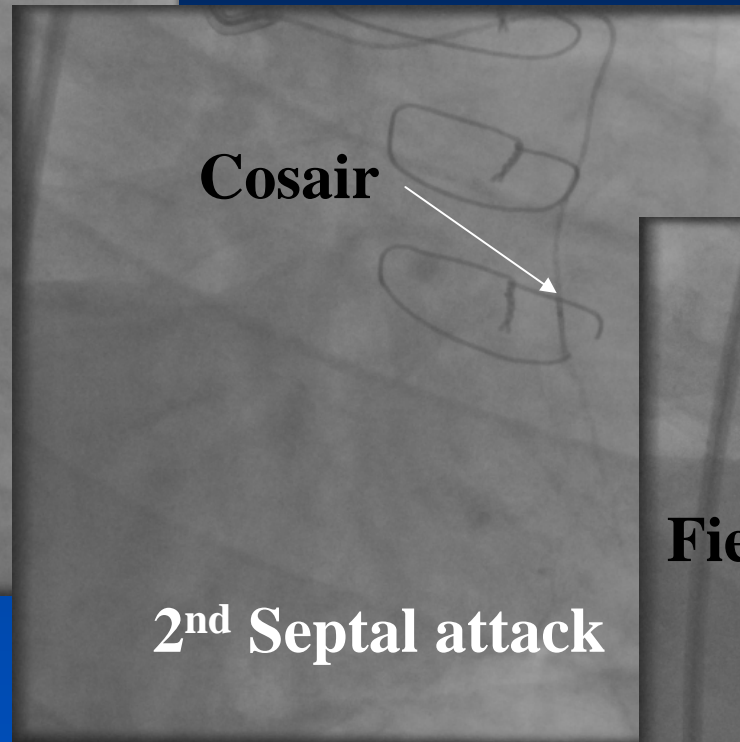
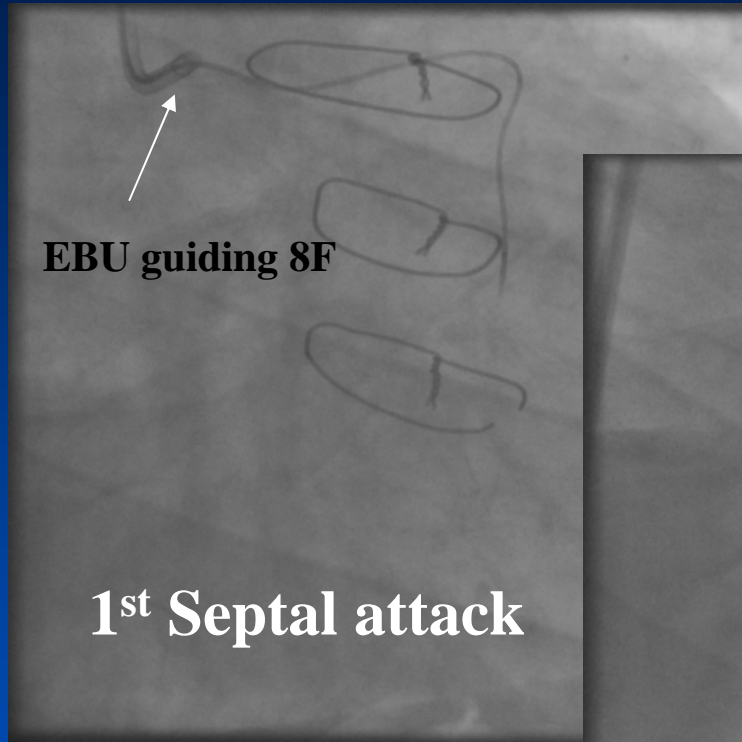


pRCA CTO



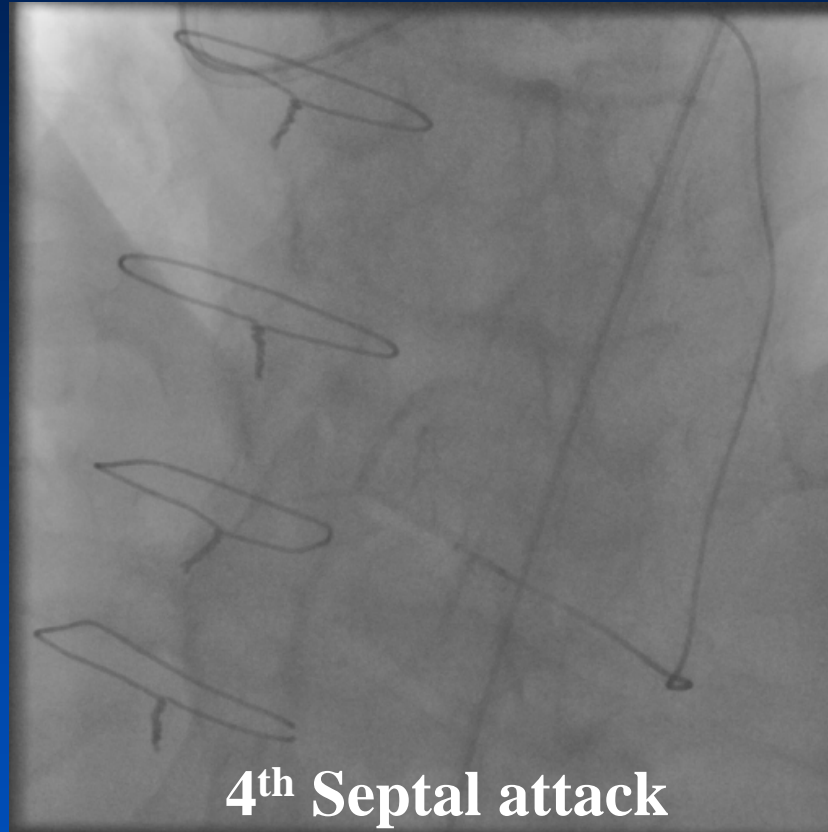
No clear connection to RCA

How-Confidence



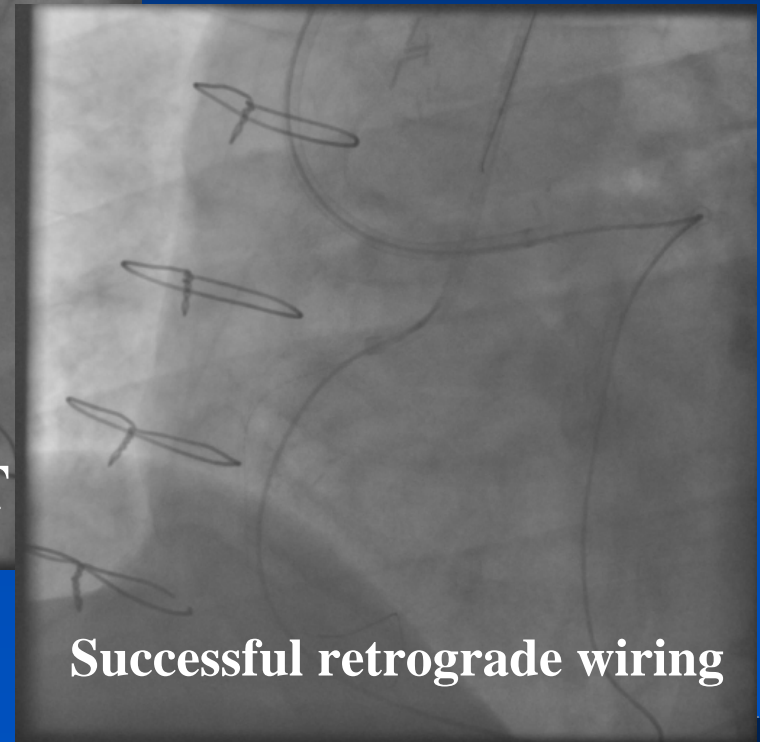
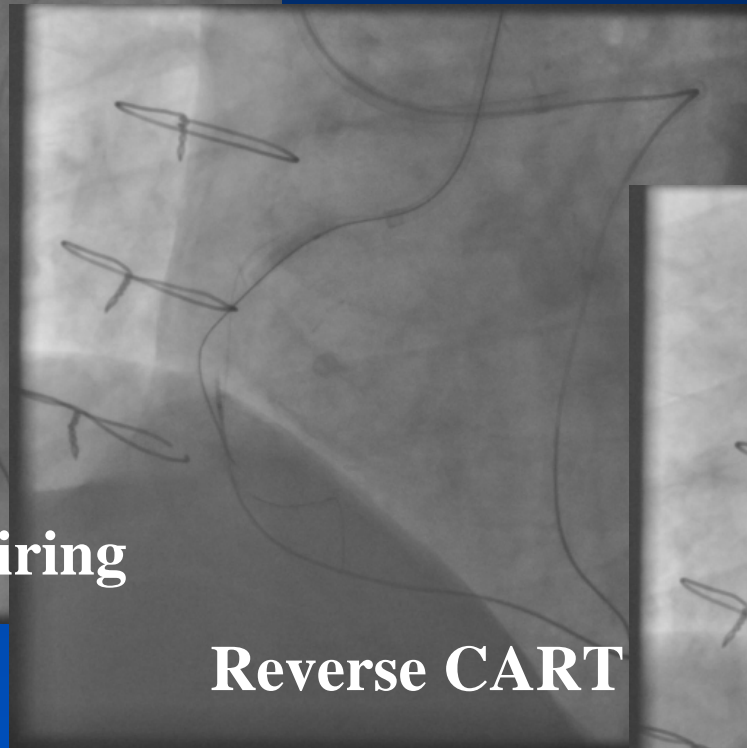
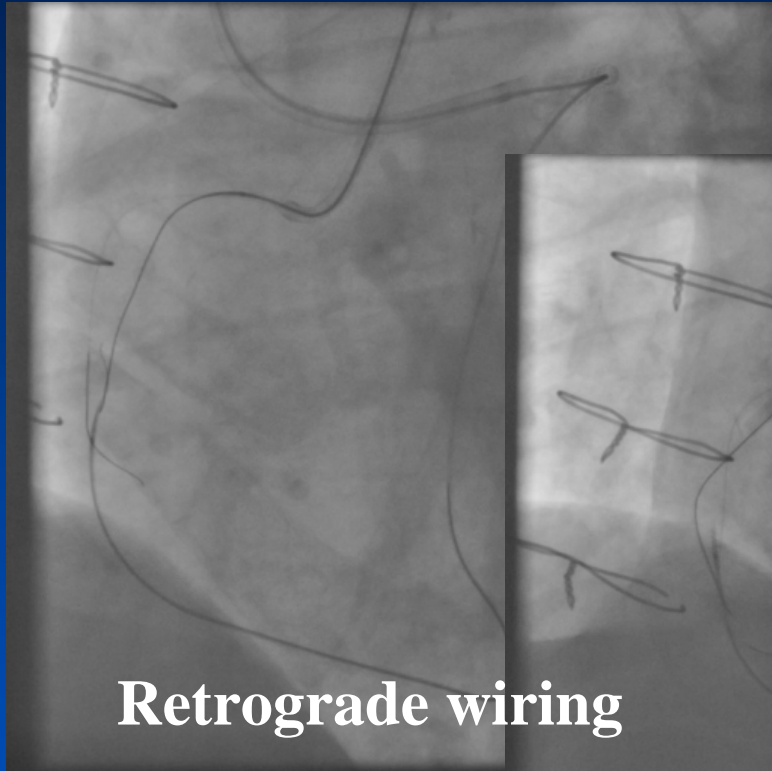
All trial was failed, but.....

How-Confidence



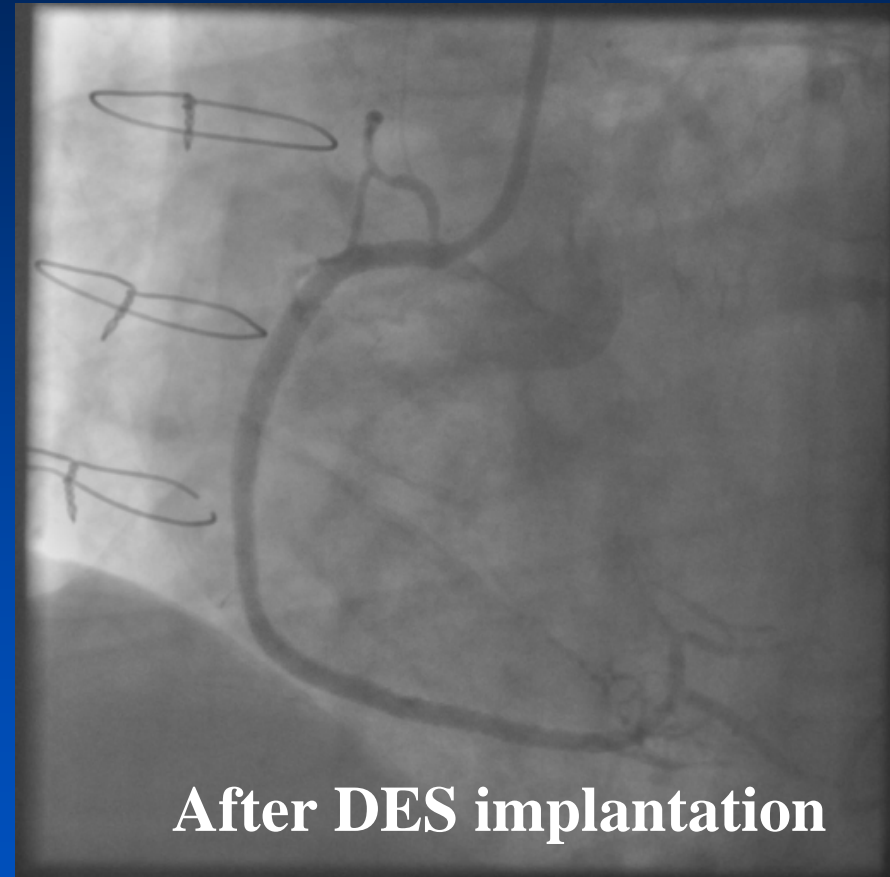
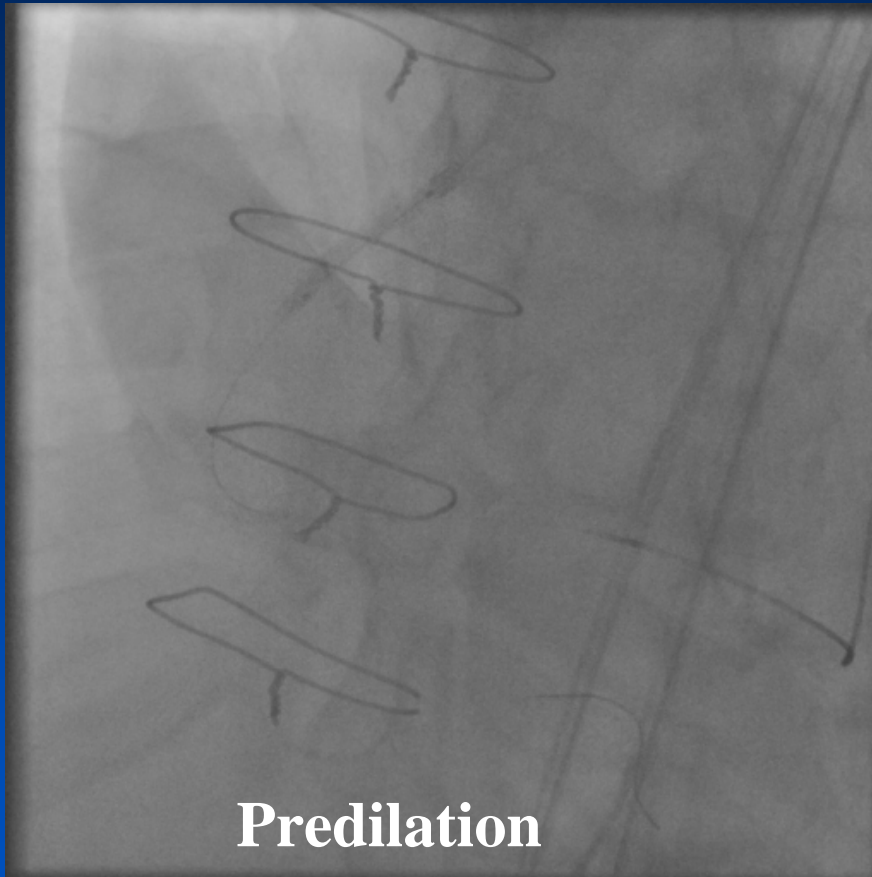
Finally, we find septal connection in 2 hrs

How-Confidence



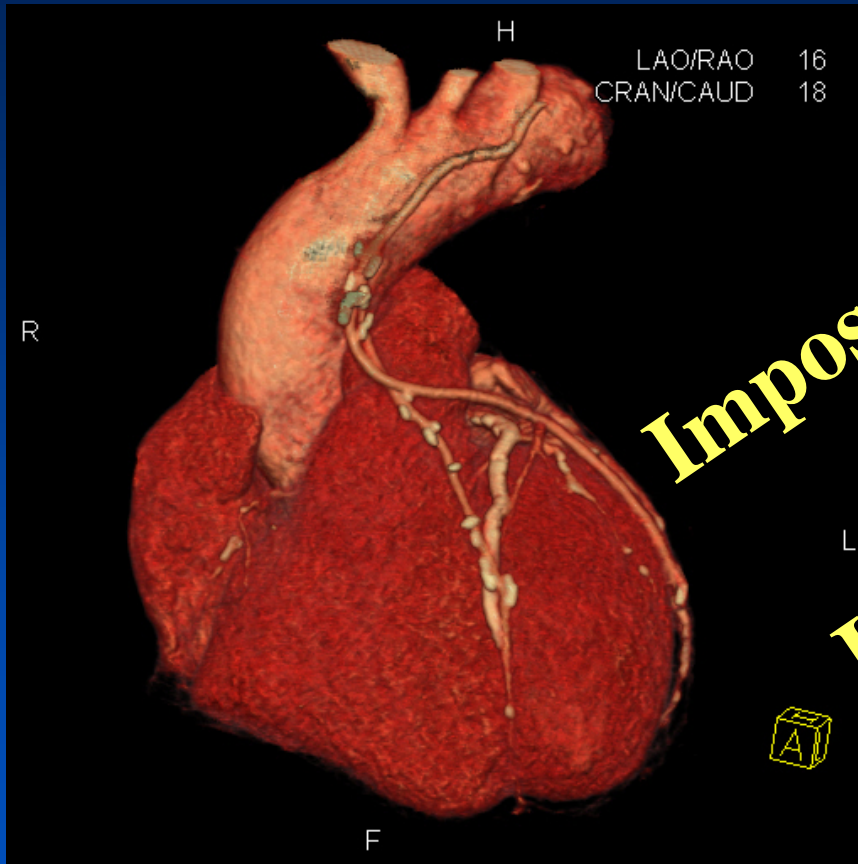
In the end, Success

Procedure time for 4 hrs, contrast 300 cc

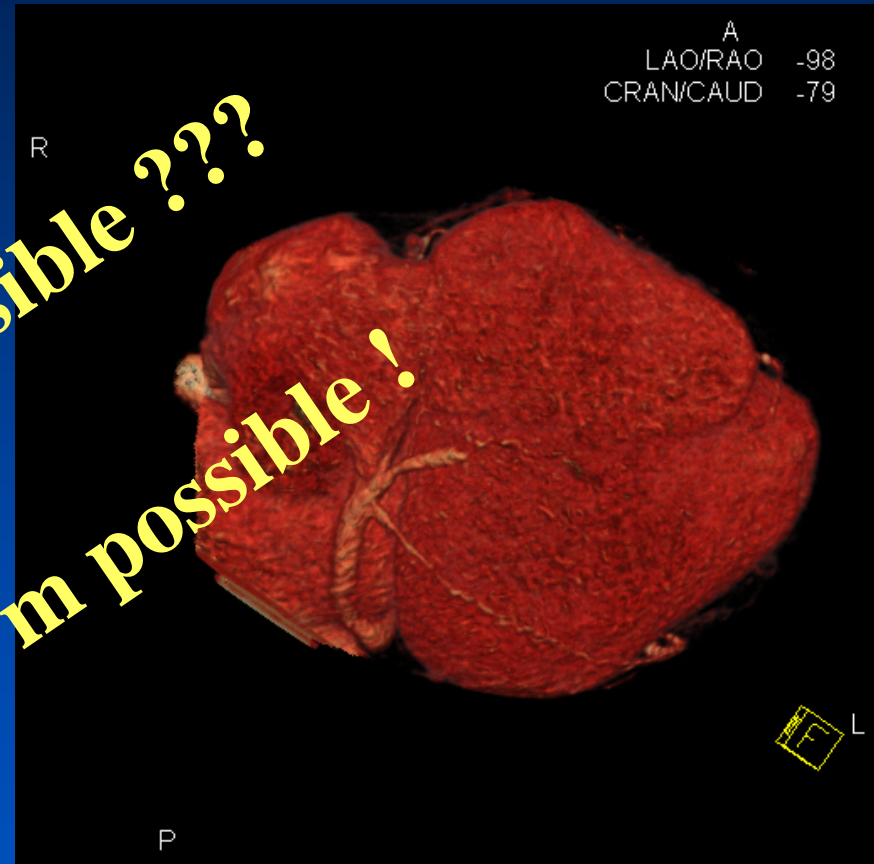


M/54 RCA long CTO

TMT stage 2 positive



pRCA CTO



Poor dRCA visualization

Why-Clinical significance of recanalized CTO

Acute phase

- **Relief of symptom**
- **Escape from bypass surgery**
- **Safety margin in PCI of other vessel**

Chronic phase

- **Improvement of LV function**
- **Collateral for the future diseased vessel**
- **Improvement of long-term prognosis**

Why-Happiness

**67/F, LAD ostial CTO with ECP,
large perfusion defect in nuclear stress test
TMT stage 2 positive**



Pre-intervention

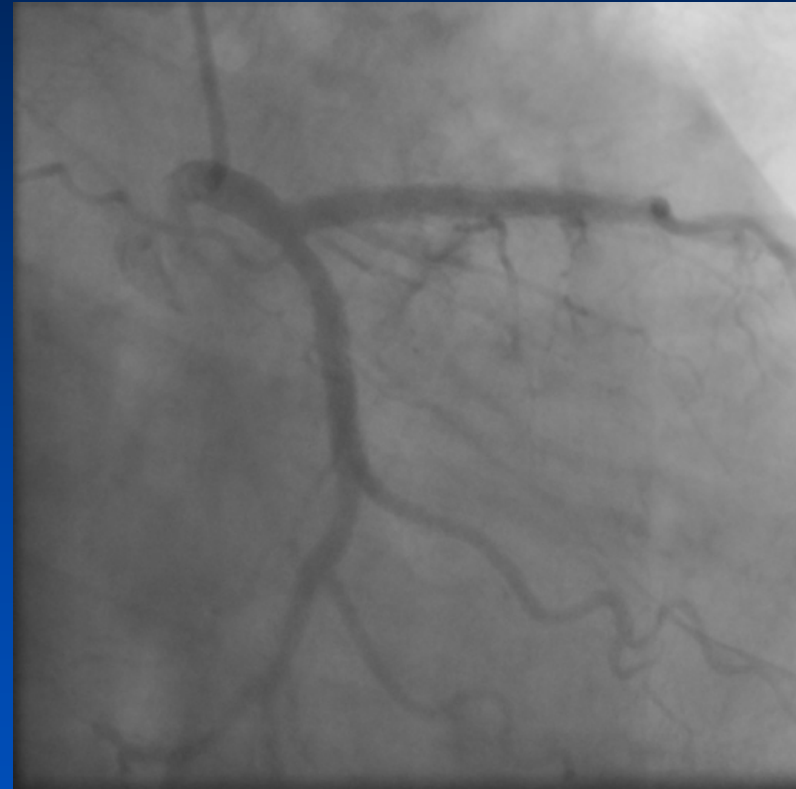
Why-Happiness



Final results with 2 Cyphers

Why-Happiness

67/F, No pain



9-month Follow-up CAG

Why-Happiness

IM SOON JA
Patient ID: 34404131
2007/01/30
9:41:37am

Stage 2 positive

Measured At 60ms Post J (10mm/mV)
Auto Points

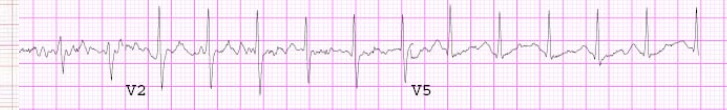
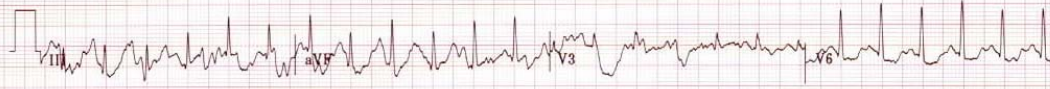
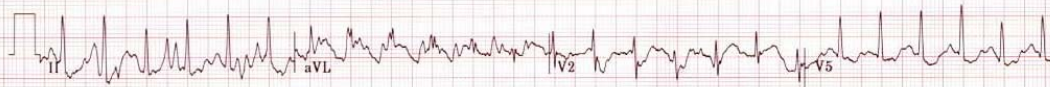
Lead	ST(mm)	Lead	ST(mm)
I	-0.25	V1	1.20
II	-1.35	V2	1.80
III	-0.90	V3	-0.20
aVR	0.70	V4	-1.05
aVL	0.40	V5	-1.35
aVF	-1.25	V6	-1.70



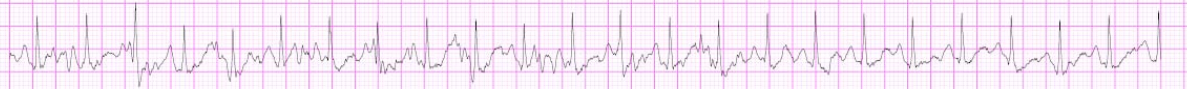
Three-year follow-up

Stage 4 negative

EXERCISE)
BRUCE
4.2 mph
16.0 %



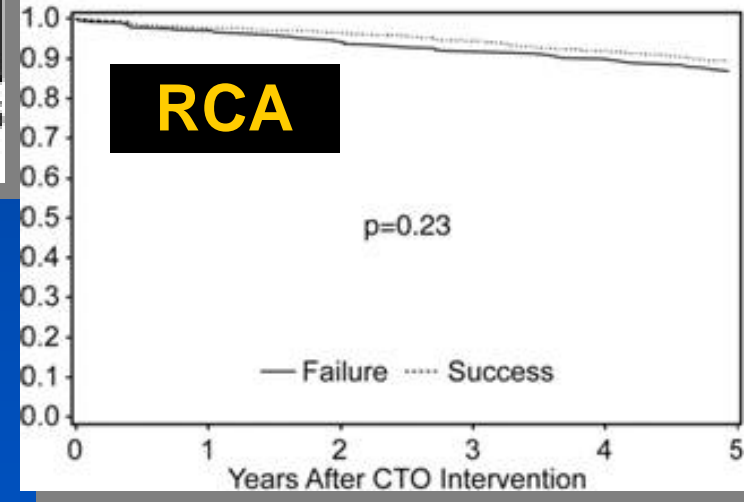
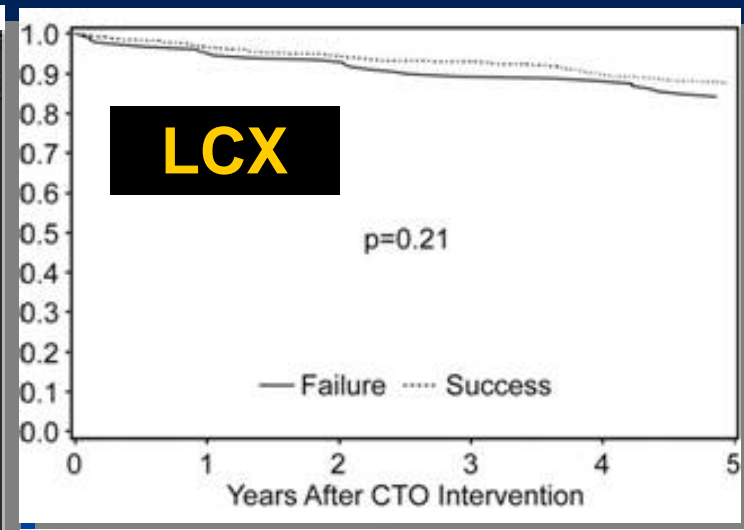
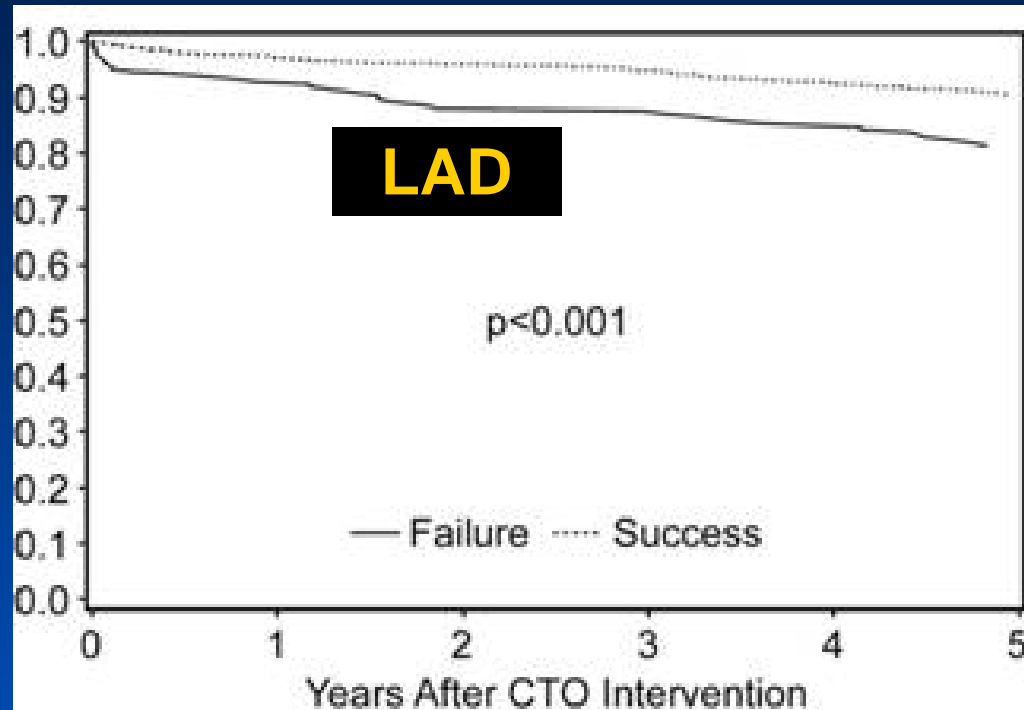
Pre-intervention



II
GE Medical Systems IT
CASE 4.14

25mm/s 10mm/mV 60Hz 0.01-20Hz FRF+ HR (V2, II)

Interaction Between Procedural Success and CTO Target Vessel on Survival



Safley, D. M. et al. *J Am Coll Cardiol Intv* 2008;1:295-302

HOW ? Basic Principles

From master of CTO

How-Master of CTO

Takahiko Suzuki



Q: what makes the greatest impact to succeed “CTO” procedure?

A: The key of success in CTO-PCI is handling of CTO guidewire as well as controlling of operator's mind.

How-Master of CTO

Shigeru Saito



Q: In order to reduce complications, what is the most important during “CTO” procedures?

A: Do your best, but be aware of your limited ability not to induce any harmful sequelae.”

How-Master of CTO

Osamu Katoh



Q: What is the most crucial point in examining CTO ANGIOGRAM to succeed “CTO” procedures ?

A: Differentiate reliable information from just speculation: completely imagine CTO segment from angiography (or CTA), not speculation

How-Master of CTO

Yasushi Asakura



Q: What is the most important point while doing ANTEGRADE APPROACH to succeed “CTO” procedures?

A: Take good angiography and Read it completely before PCI.

During PCI,

- 1. DO gentle wire manipulation.**
- 2. See angiography from various directions.**
- 3. Take contra-lateral injection, if necessary.**
- 4. Limit use of Conquest.**

How-Master of CTO

Etsuo Tsuchikane



Q: What is the most important point while doing RETROGRADE APPROACH to succeed “CTO” procedures?

A: Basically the retrograde approach carries the risk of disaster caused by donor artery trouble. So it's the most important to always keep attention to donor artery condition to prevent any major complication.

How-Master of CTO

Nae-Hee Lee



Q: What is the most important point while WIRE SELECTION to succeed “CTO” procedures?

A: Lesion hardness and Tortuosity

- 1. Soft, straight lesion: fielder XT → miracle 3**
- 2. Soft, tortuous lesion: fielder XT → miracle 3**
- 3. Hard, straight lesion: miracle 3 → conquest**
- 4. Hard, tortuous lesion: retrograde approach**

Never Stop, just Do it

- Controlling your mind, good angiography, careful wire selection according to lesion hardness and tortuosity, gentle wire manipulation, and attention to donor artery condition may improve success and reduce complications
- Experience using advanced technique and dedicated CTO device help your CTO success.
- Adding strong *passion* and *confidence* to your art of CTO techniques improves CTO *success* and patient's *happiness*.
- Always be careful and Stop if the procedure is harmful to patients

“Save the Dates!”

Thanks for attention

**5th
CTO
LIVE
2011**

Saturday, January 8, 2011

Main Auditorium, Asan Medical Center, Seoul, Korea

