

How to Negotiate Collateral Channel?

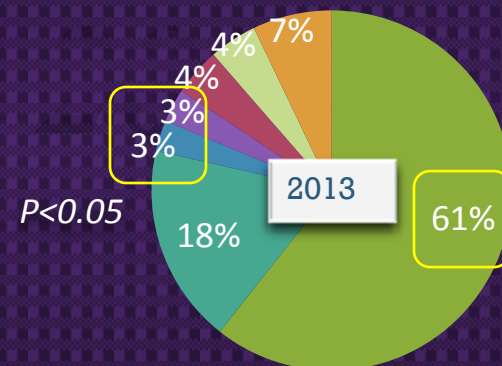
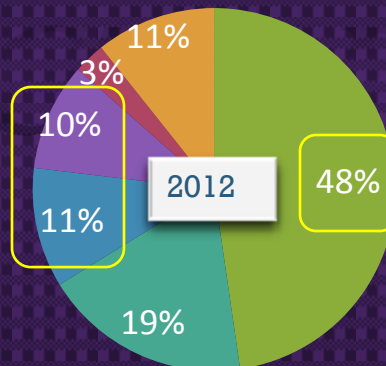
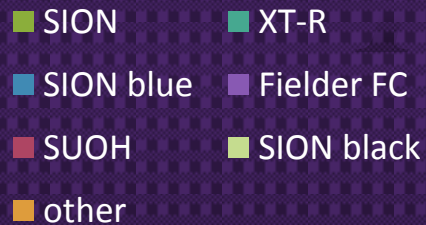
Kenya Nasu, MD, FACC
Toyohashi Heart Center, Japan

PROCEDURE CHARACTERISTICS (2)

COLLATERAL APPROACH

| | Total (1028) | 2012 (490) | 2013 (538) | P |
|------------------------|--------------------|--------------------|-------------------|---------------|
| Guidewire cross | 76.9% (791) | 77.6% (380) | 76.4%(411) | 0.6600 |

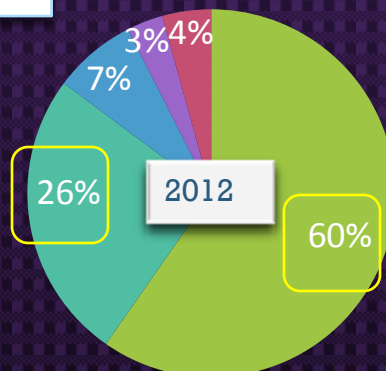
Successful guidewire



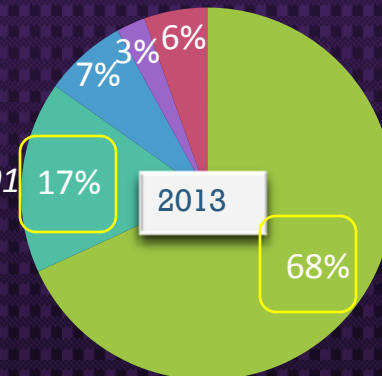
$P < 0.05$

$P < 0.05$

Successful collateral route



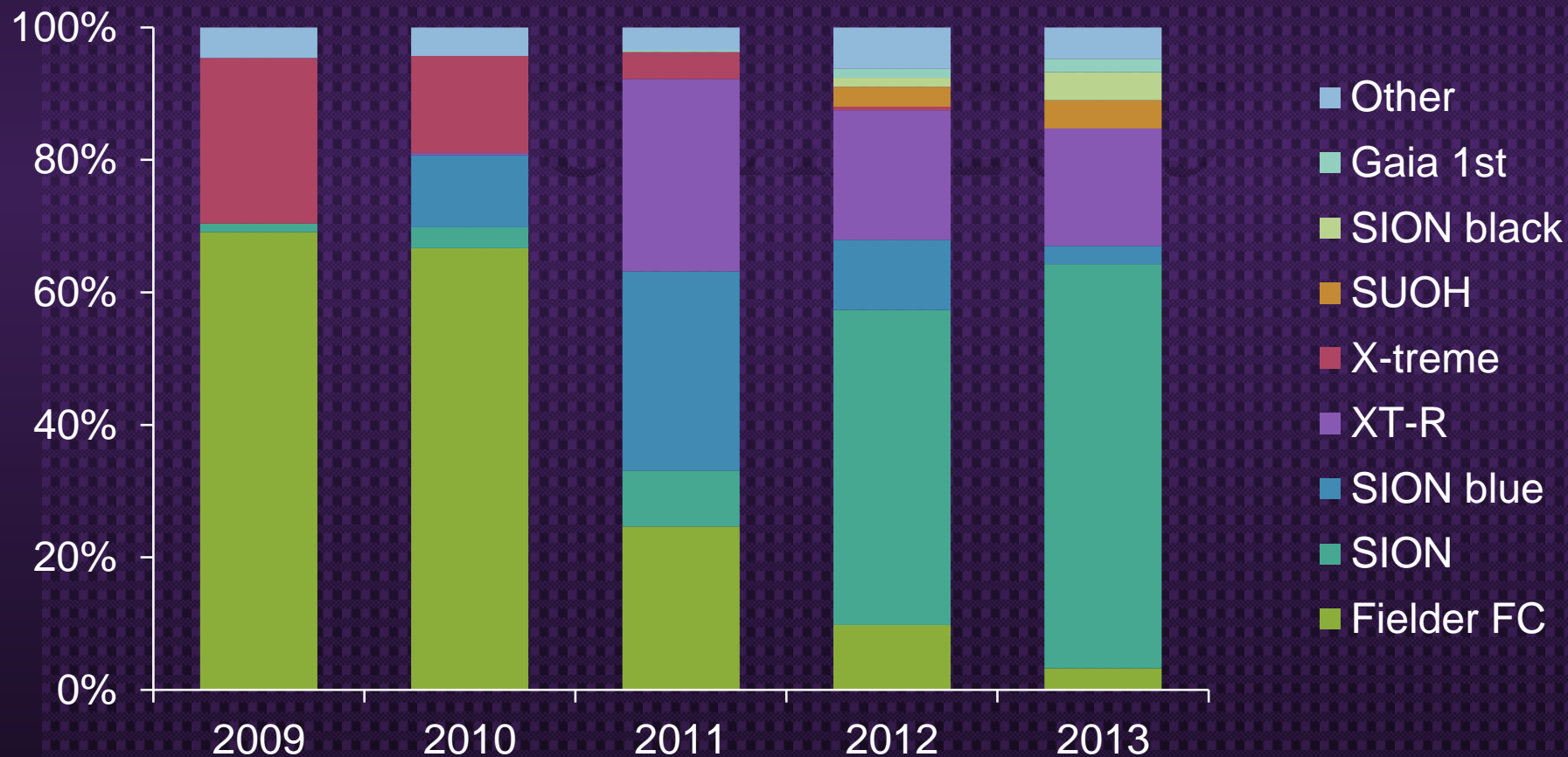
$P < 0.001$



Procedure Characteristics

Channel Crossing GW detail

GW success for Channel crossing: 79.8%



Retrograde Procedure Outcome (1)

Retrograde cases (1028)

| | Total (1028) | 2012 (490) | 2013 (538) | P |
|-------------------|--------------|-------------|------------|--------|
| Procedure success | 64.0% (658) | 66.5% (326) | 61.7%(332) | 0.1078 |

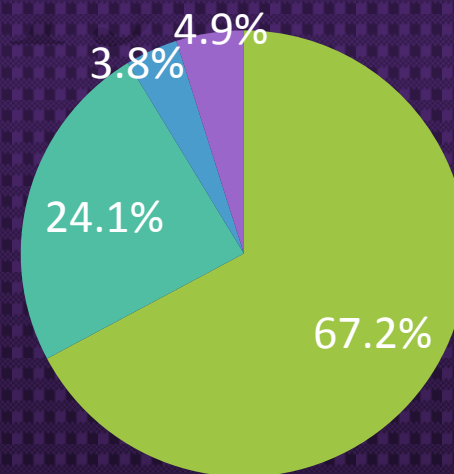


Reason of retrograde procedure failure (370)

- Couldn't cross collateral channel
- Couldn't cross CTO by GW
- Couldn't cross CTO by any catheter
- Procedure discontinuation due to complication



Switched to antegrade approach ; 80.0% (296)



Complications

| | (n=2194) | |
|-------------------------------------|-------------|-------------|
| Cardiac Tamponade | 0.73 | (16) |
| Contrast induced nephropathy | 0.32 | (7) |
| Side Branch Occlude | 0.09 | (2) |
| Radiation dermatitis | 0.04 | (1) |
| Heart Failure | 0.04 | (1) |
| Thrombosis (LMT) | 0.04 | (1) |

Retrograde approach relevant complications (n = 241)

Channel injury: 87.1% (210)

| | |
|--------------------|--------------|
| Treatment Required | 29% (61/210) |
| Cardiac Tamponade | 4.2% (9/210) |

Donor artery trouble: 4.5% (11)

| | | |
|-------------------------------------|-----|--------|
| Dissection Requiring Stent | 73% | (8/11) |
| Spasm | 16% | (2/11) |
| Ischemia due to Pre-existing Lesion | 8% | (1/11) |
| Thrombosis | 0% | (0) |

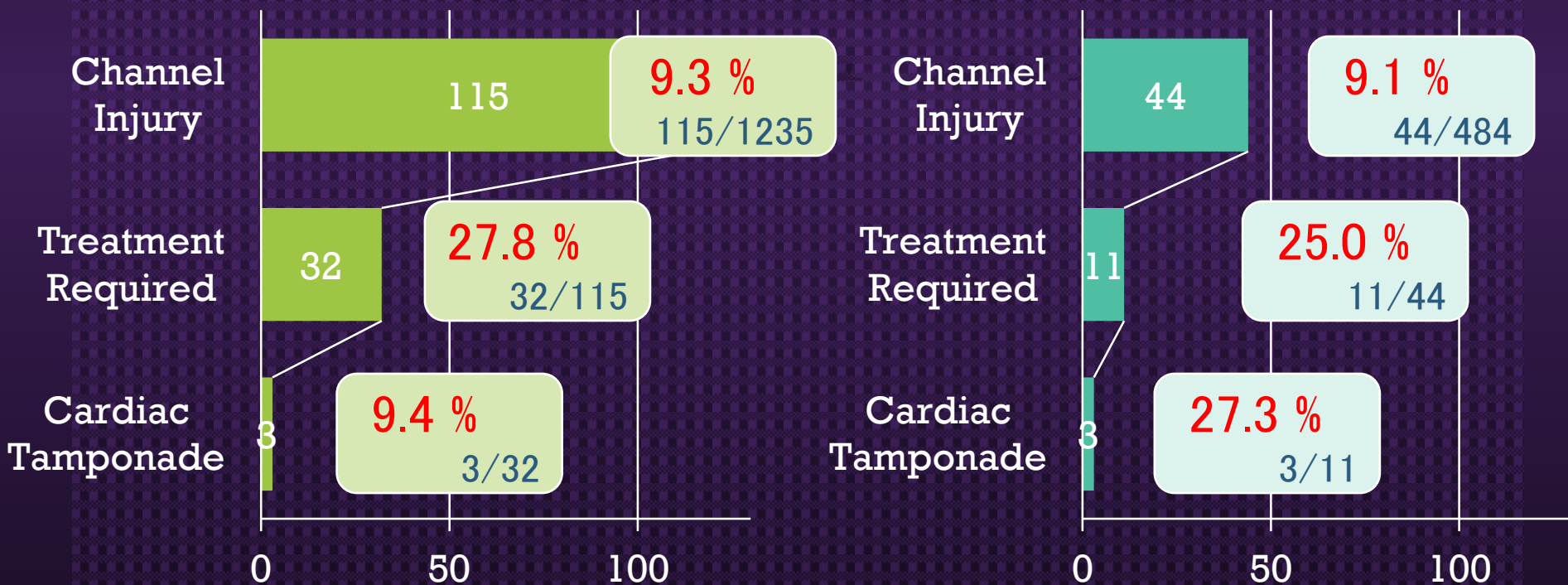
Other: 8.3% (20)

Complications

Channel Injury Detail

Septal Channel (n=1235)

Epicardial Channel (n=484)

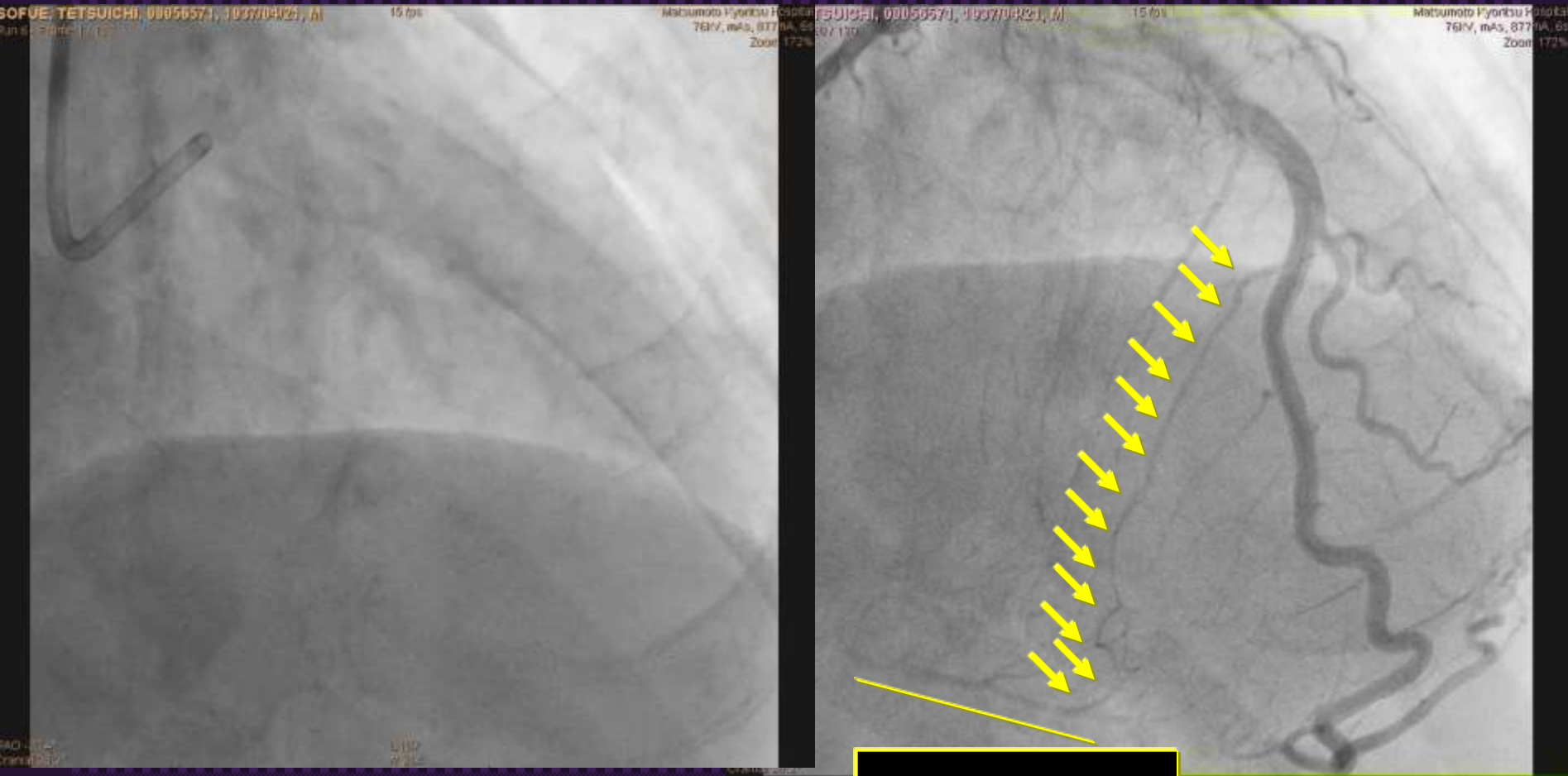


How to Negotiate Collateral Channel?

- Evaluation from different views is very important.

1 2 3 4 5 6 7 8 9

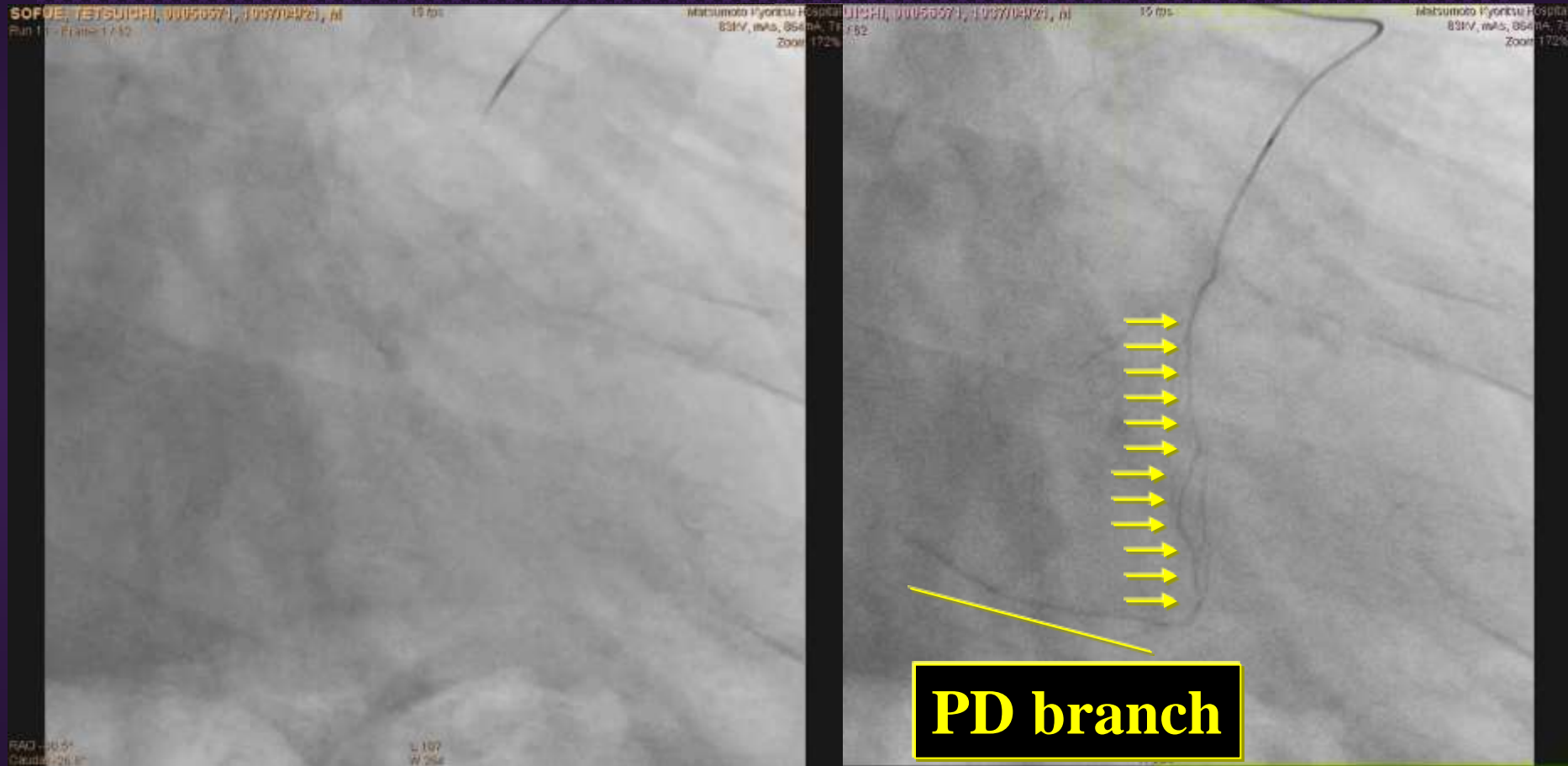
Case 1: Septal channel



RAO CRA

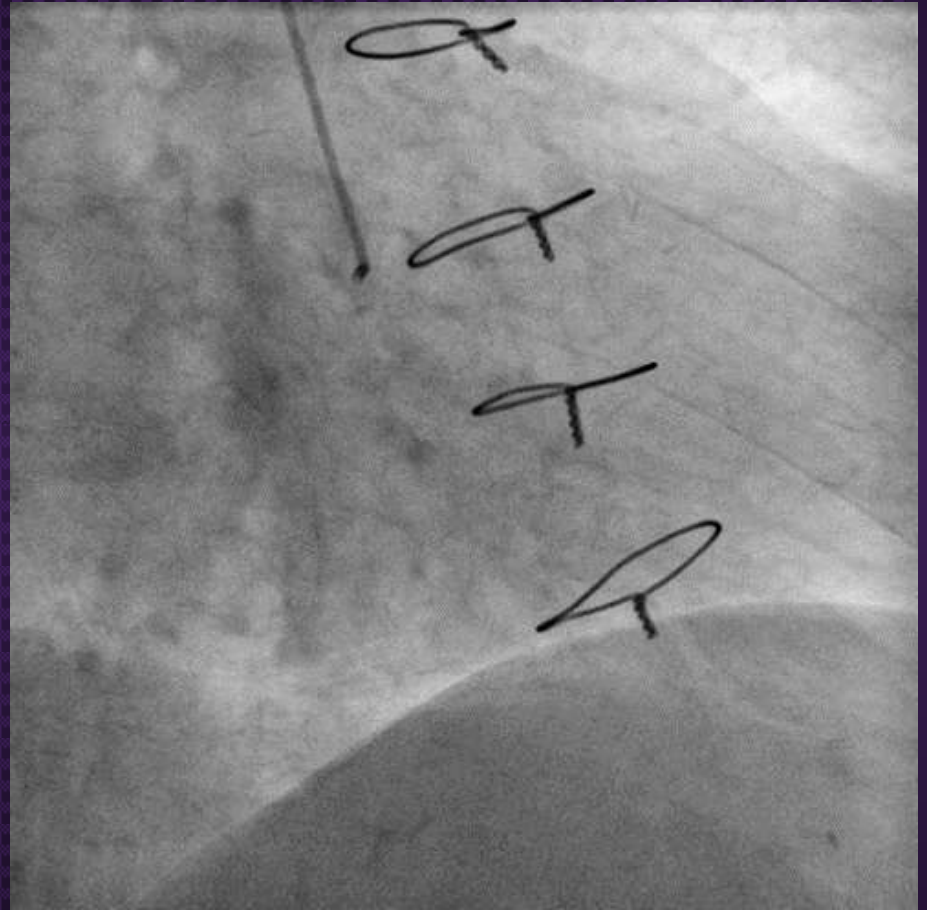
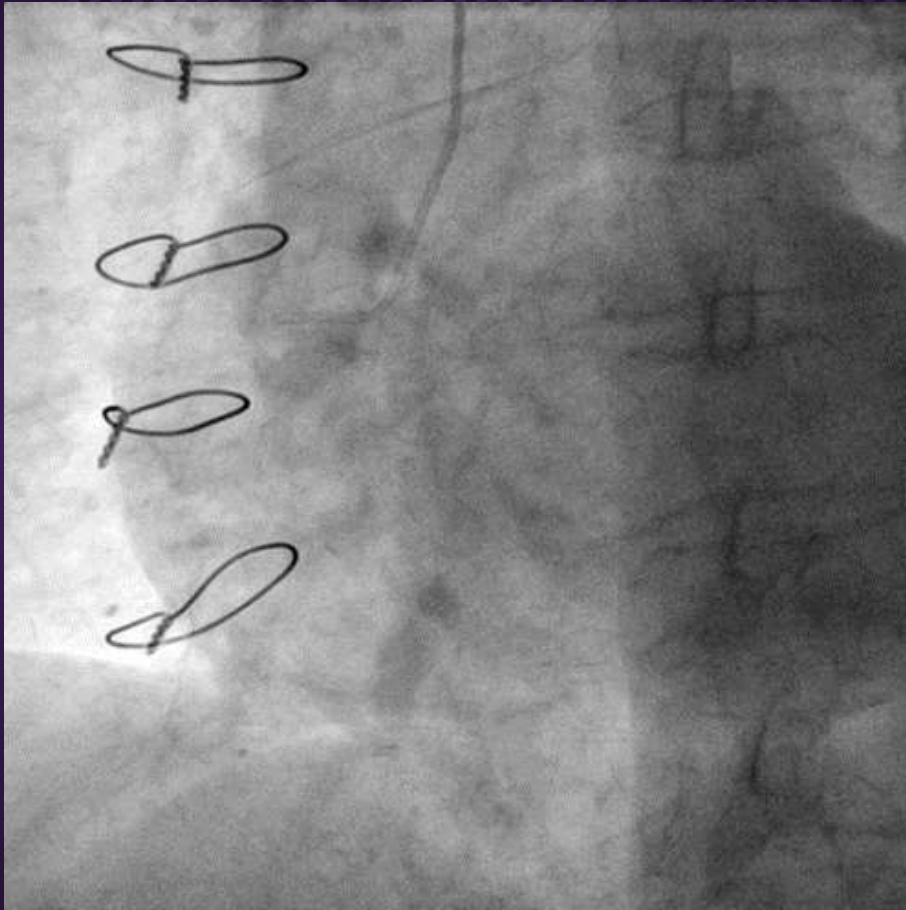
PD branch

Angiographic view is very important!

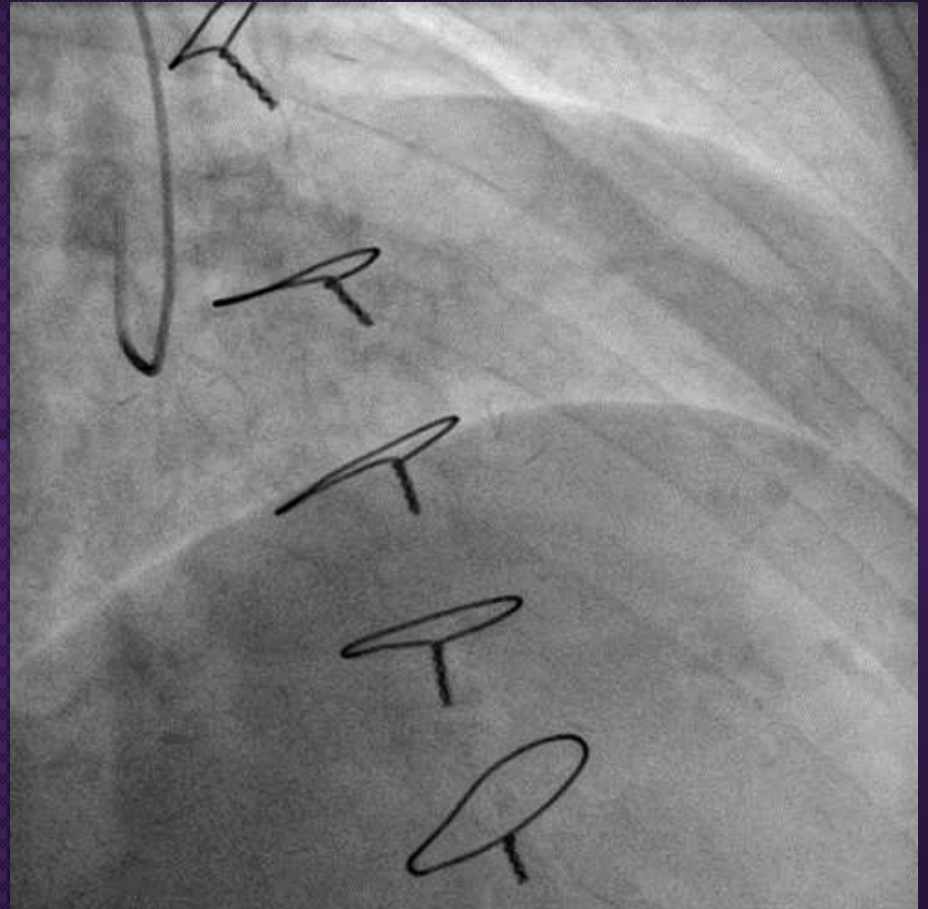
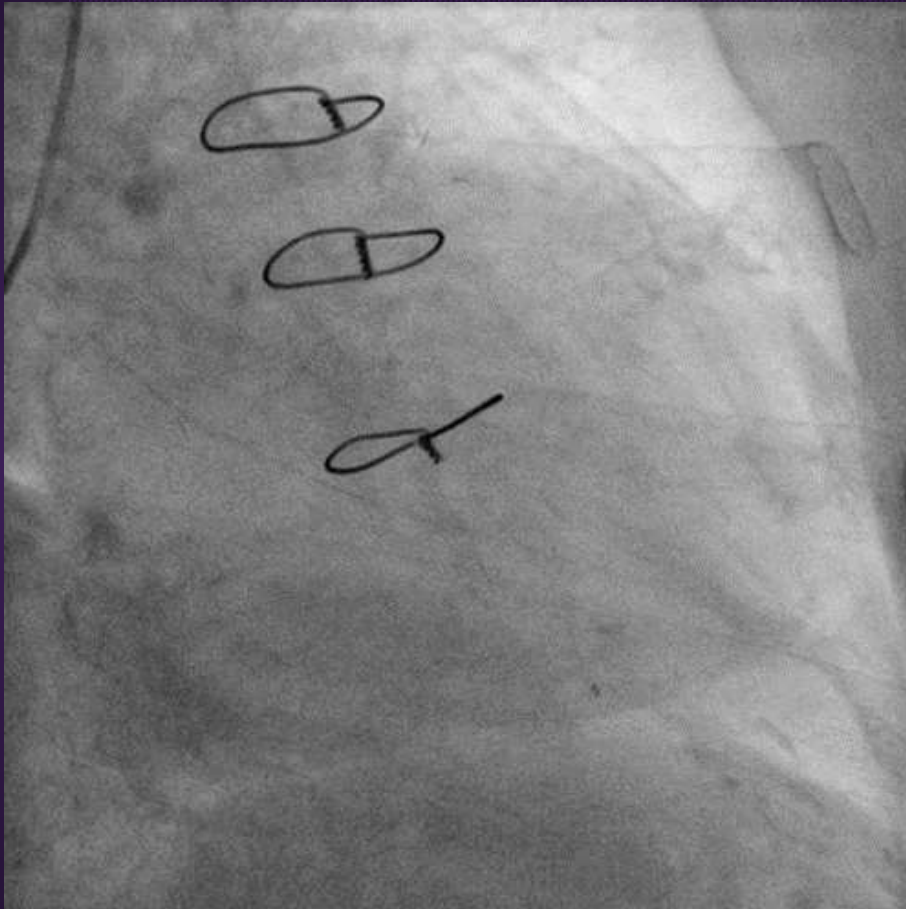


RAO CAU

Case 2: Septal channel



Case 2 RCA CTO

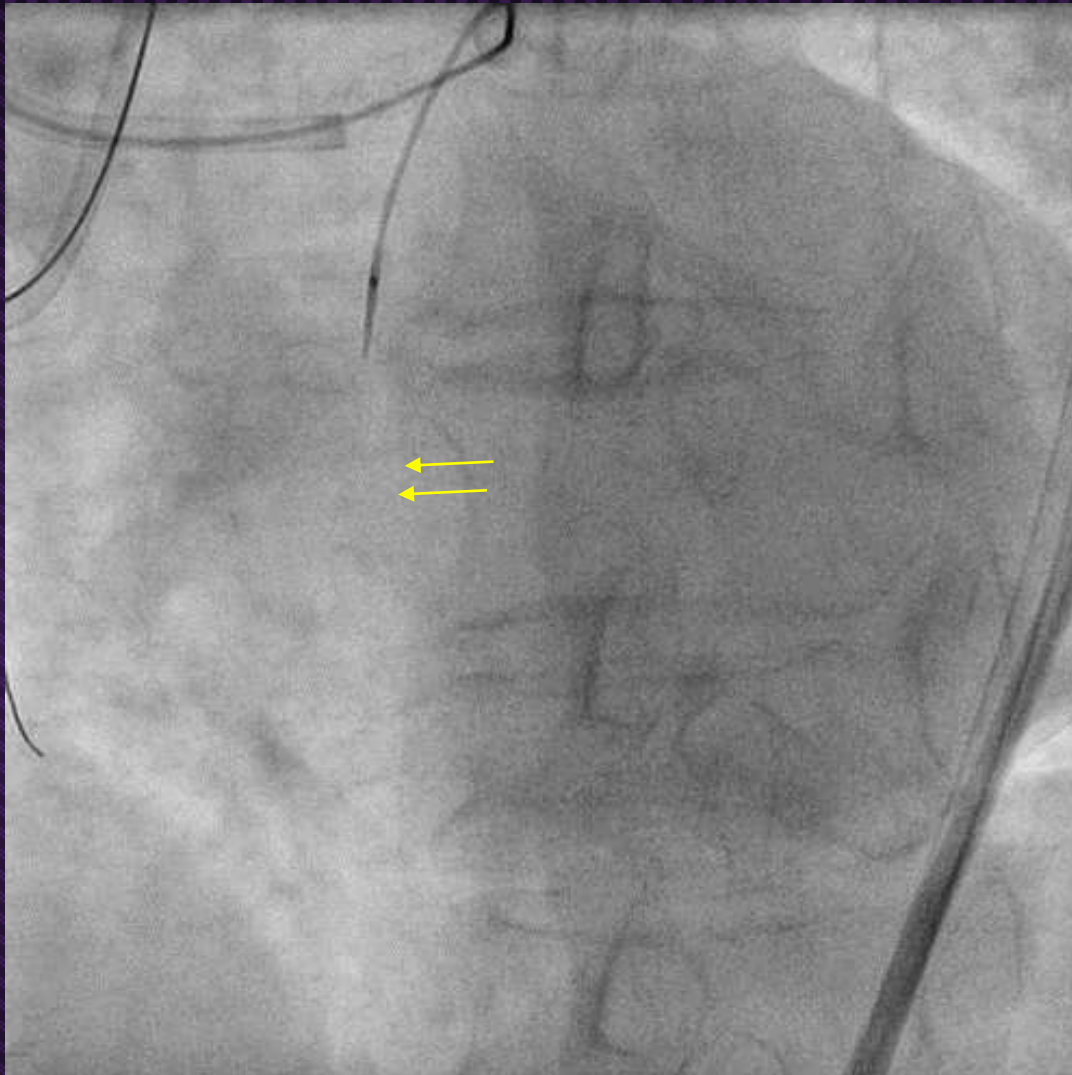




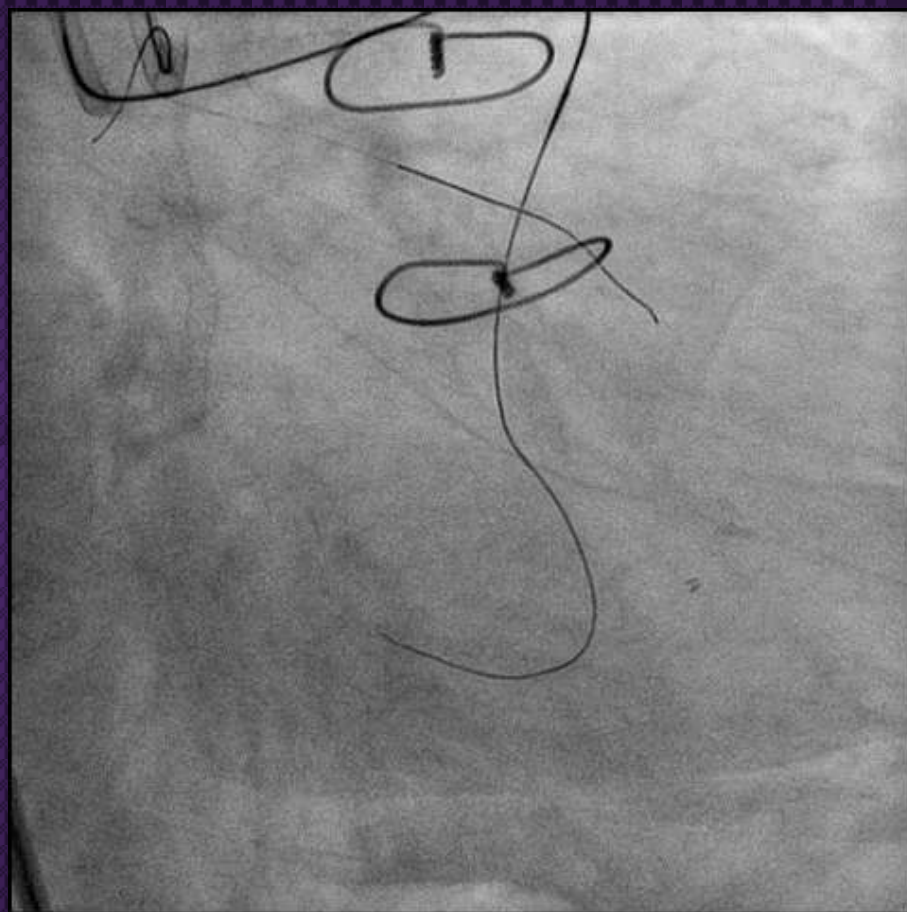
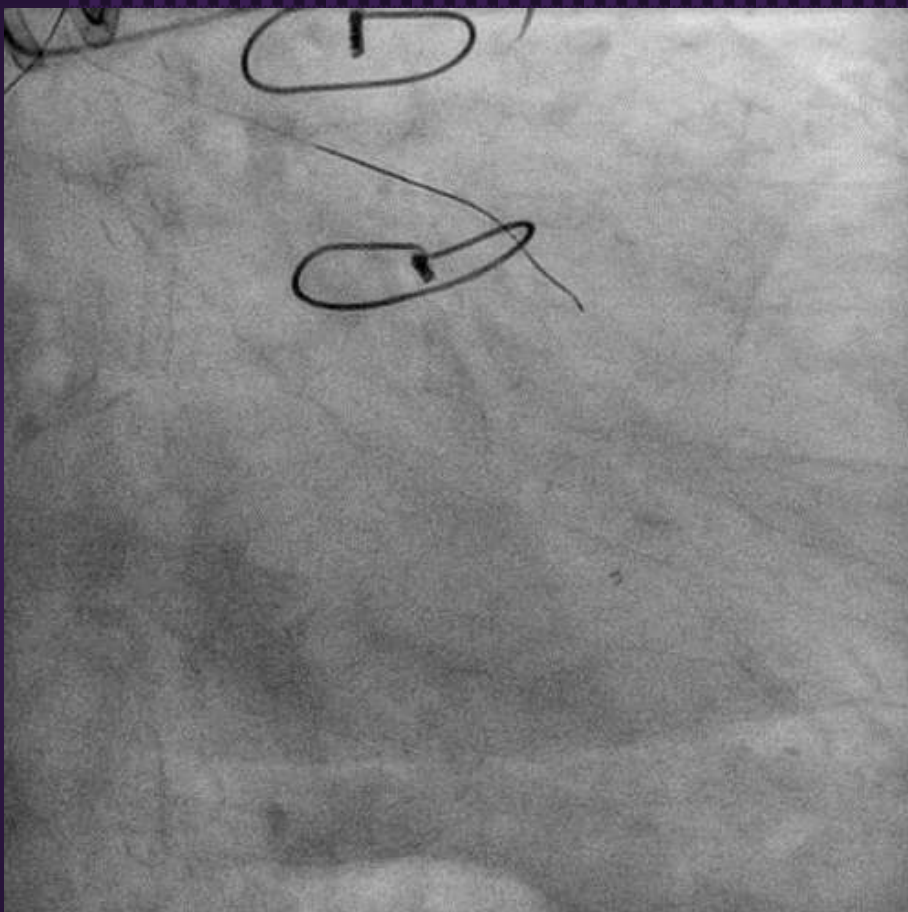
RAO CRA



RAO CAU

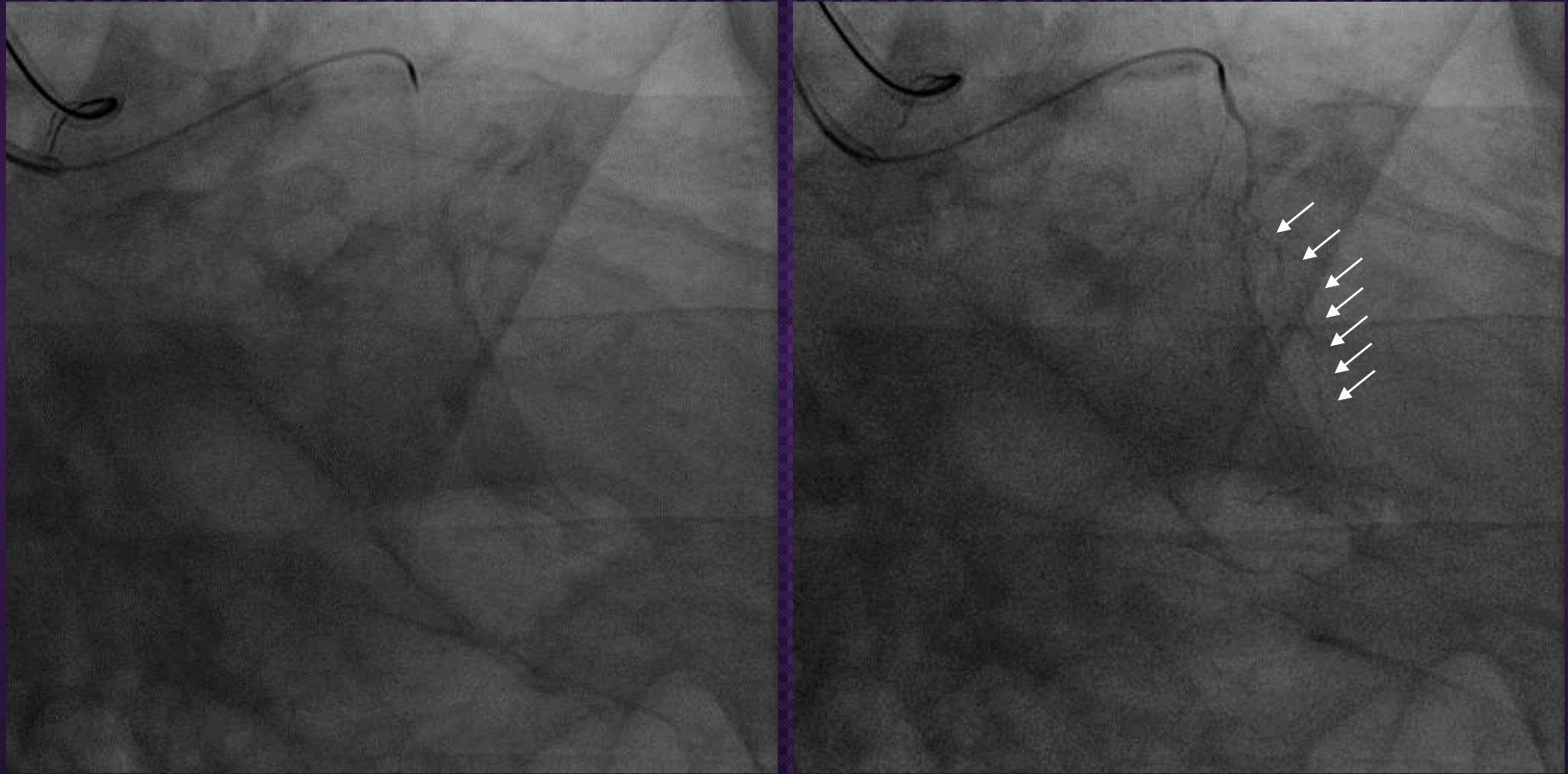


LAO CRA



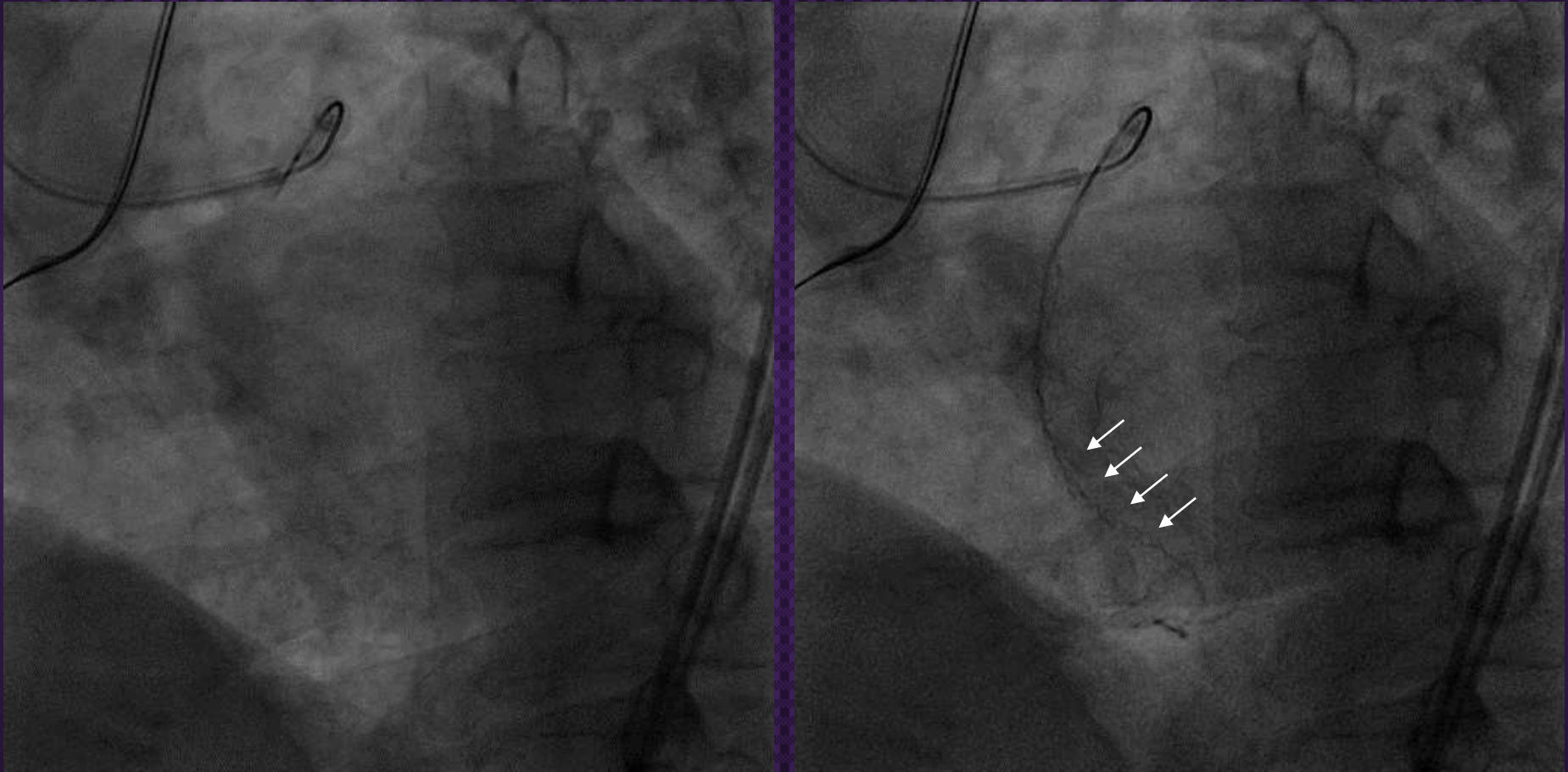
RAO CAU

Case 3: Septal channel

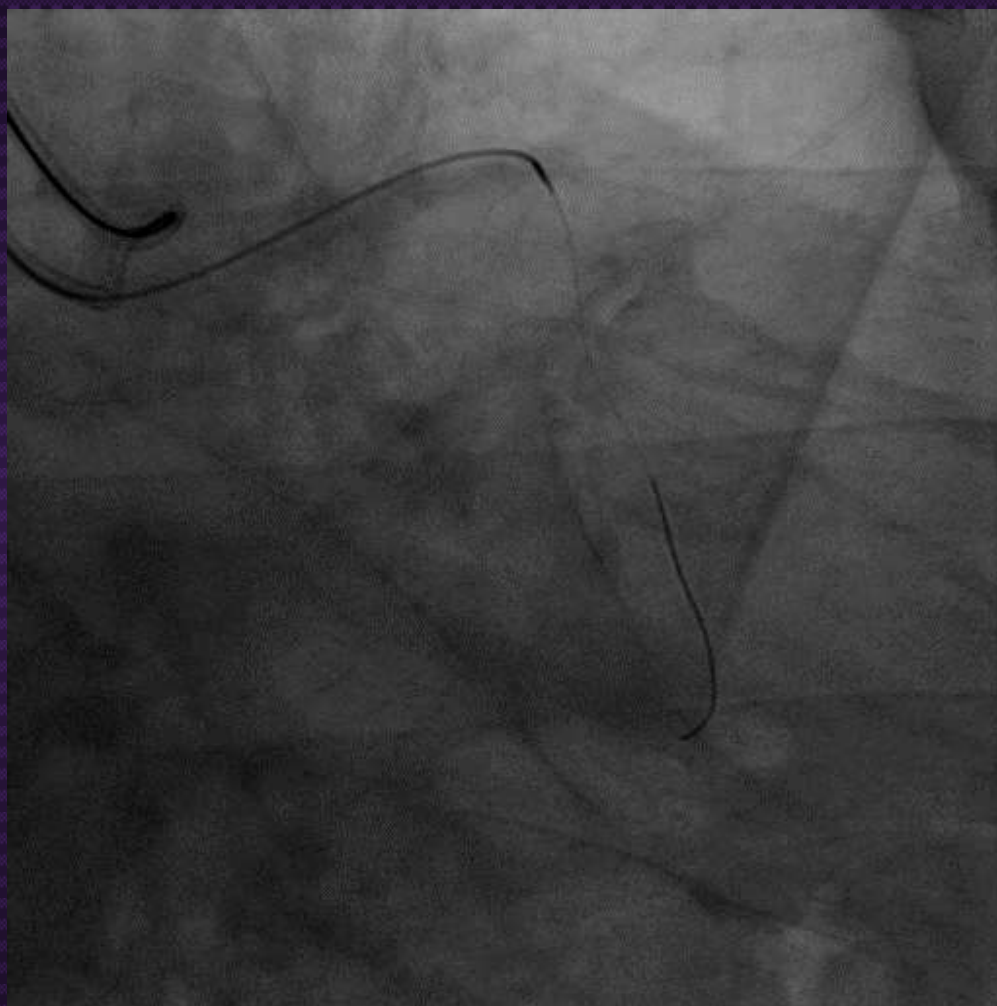


RAO CAU

- You can (should) understand difficulty of channel negotiation before tracking.



LAO

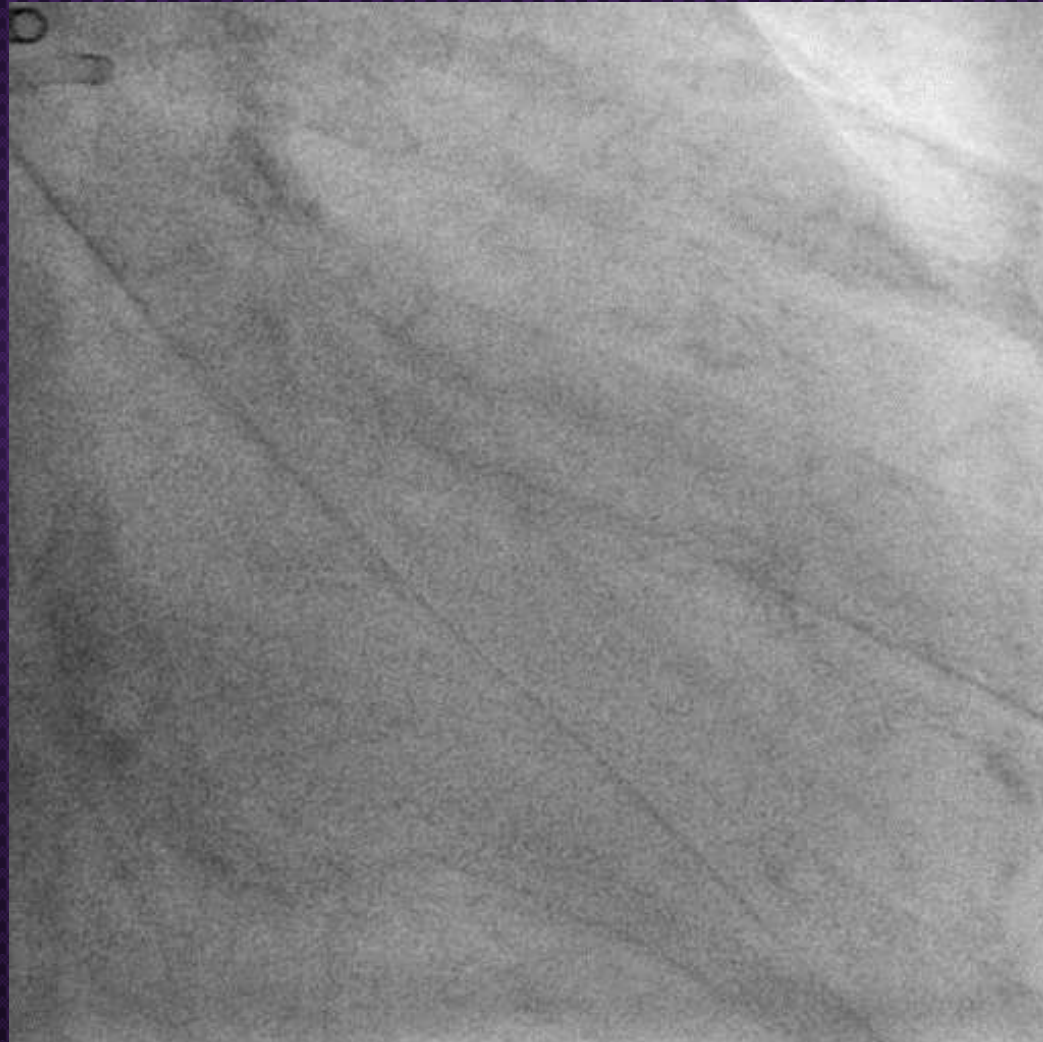


How to Negotiate Collateral Channel?

- Evaluation from different views is very important.
- Visible channel is not always selectable

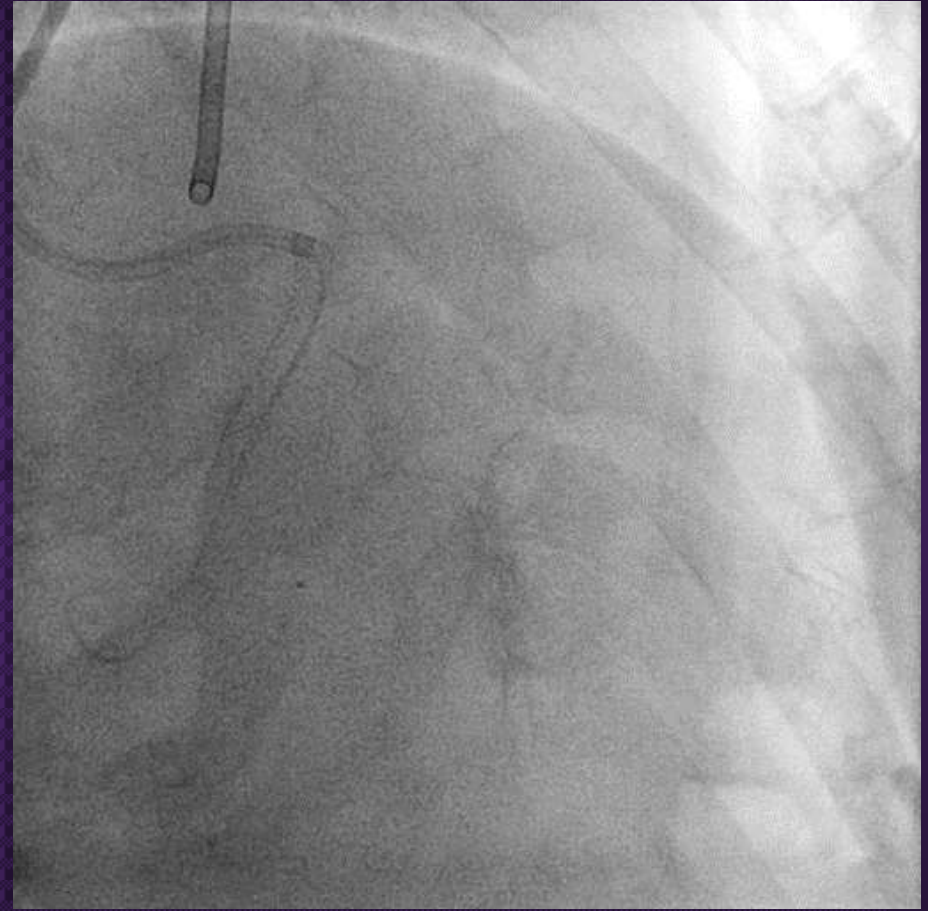
Navigation icons: back, forward, search, etc.

Case 3: Septal channel RCA to LAD

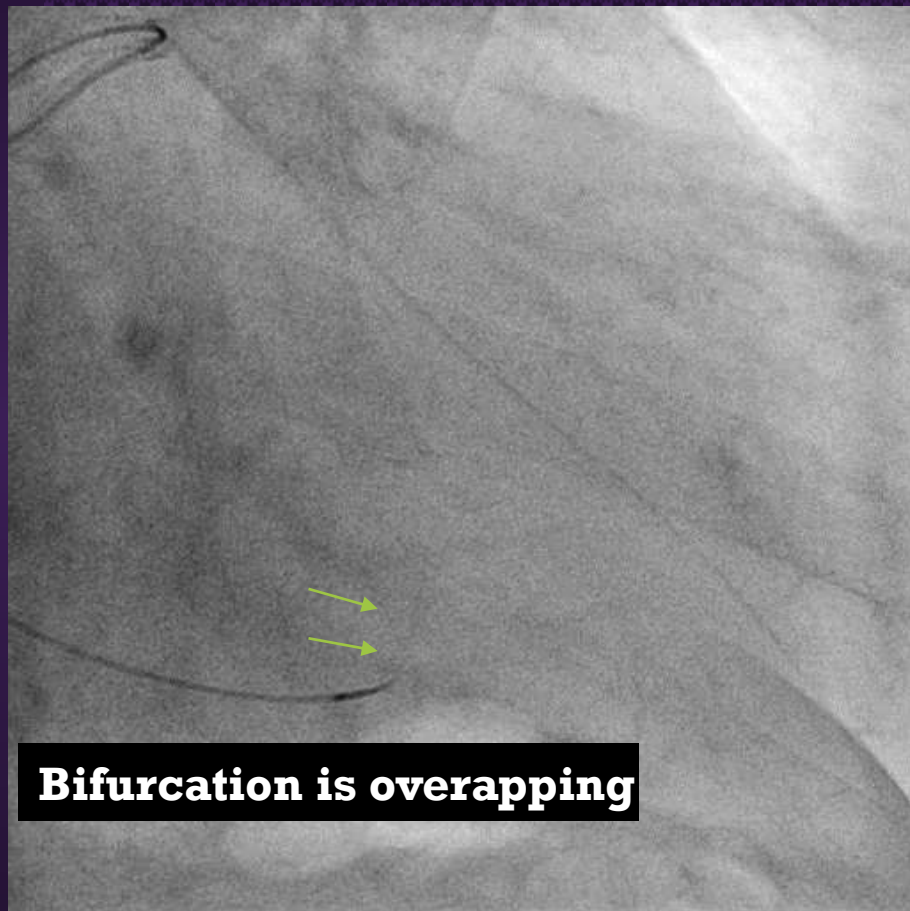




RAO CAU

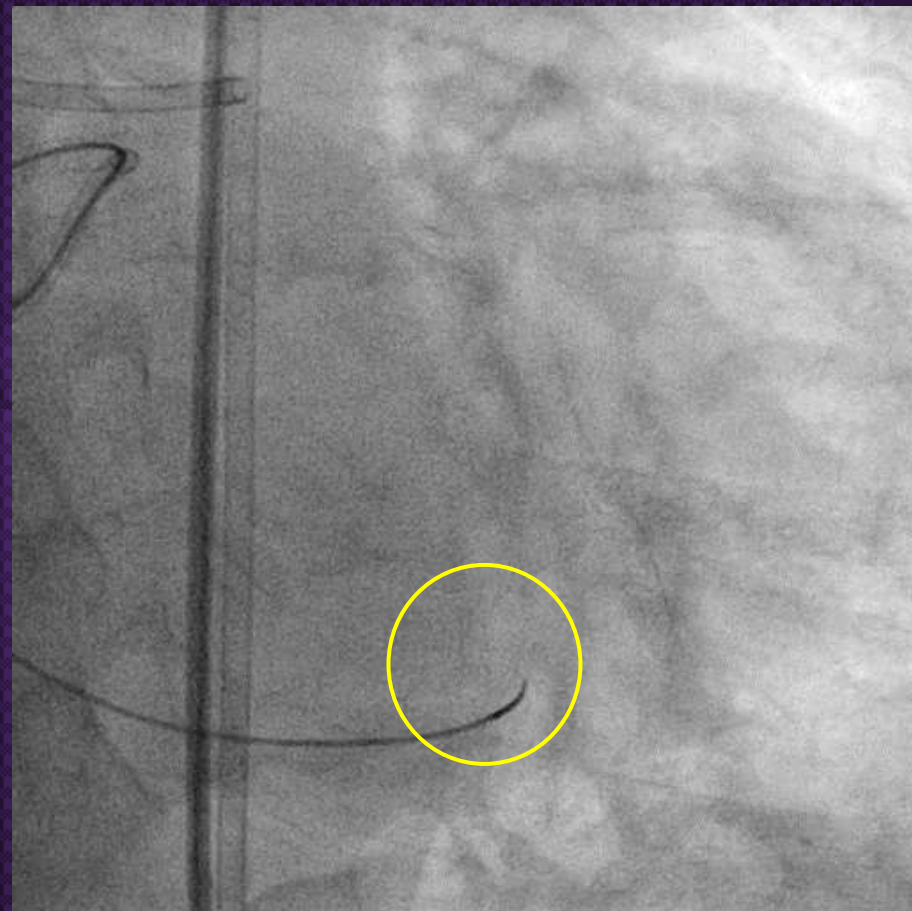


RAO CRA



Bifurcation is overlapping

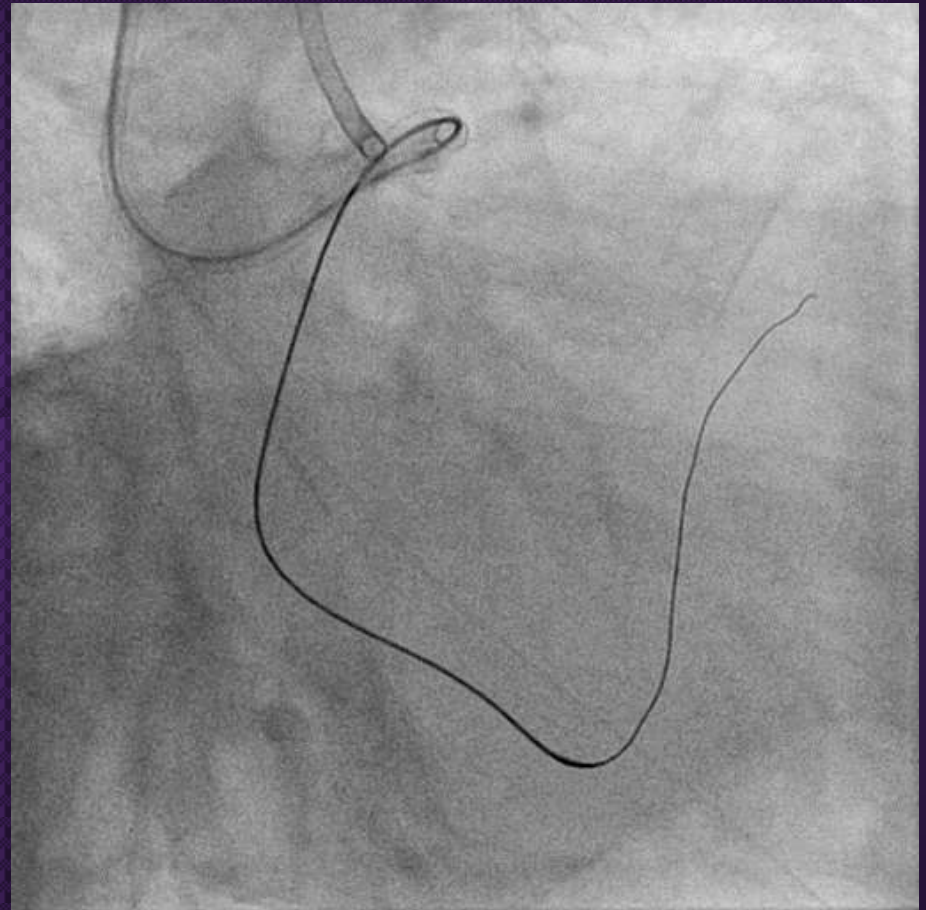
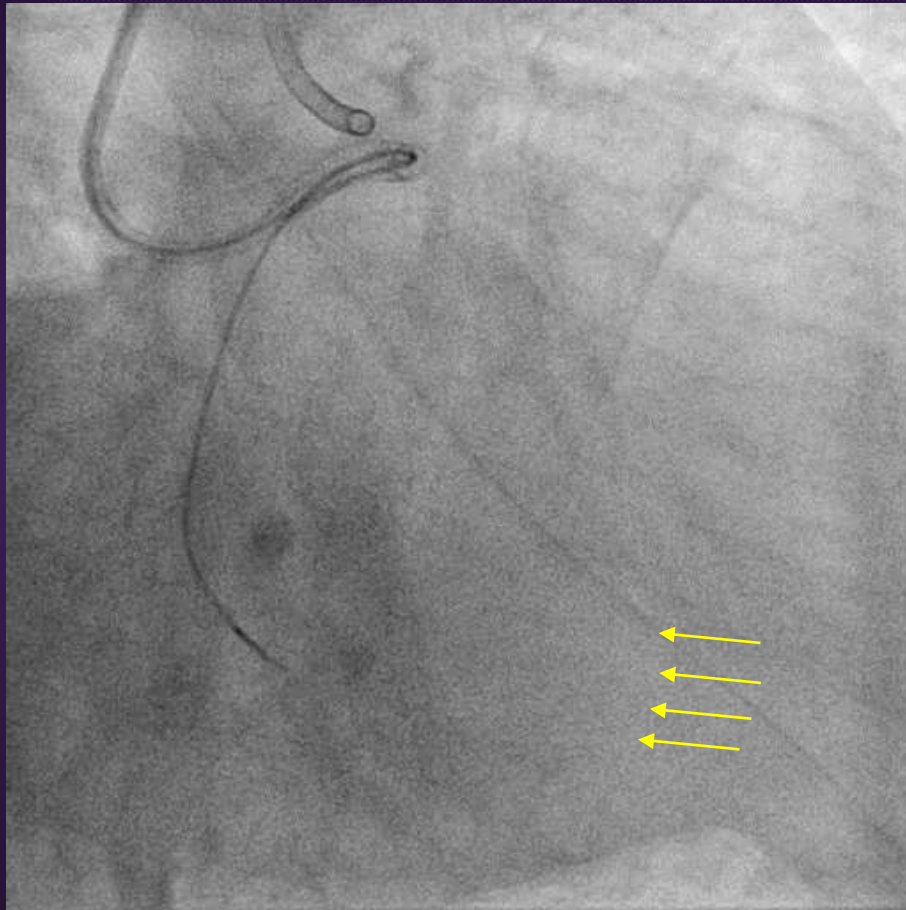
RAO CAU



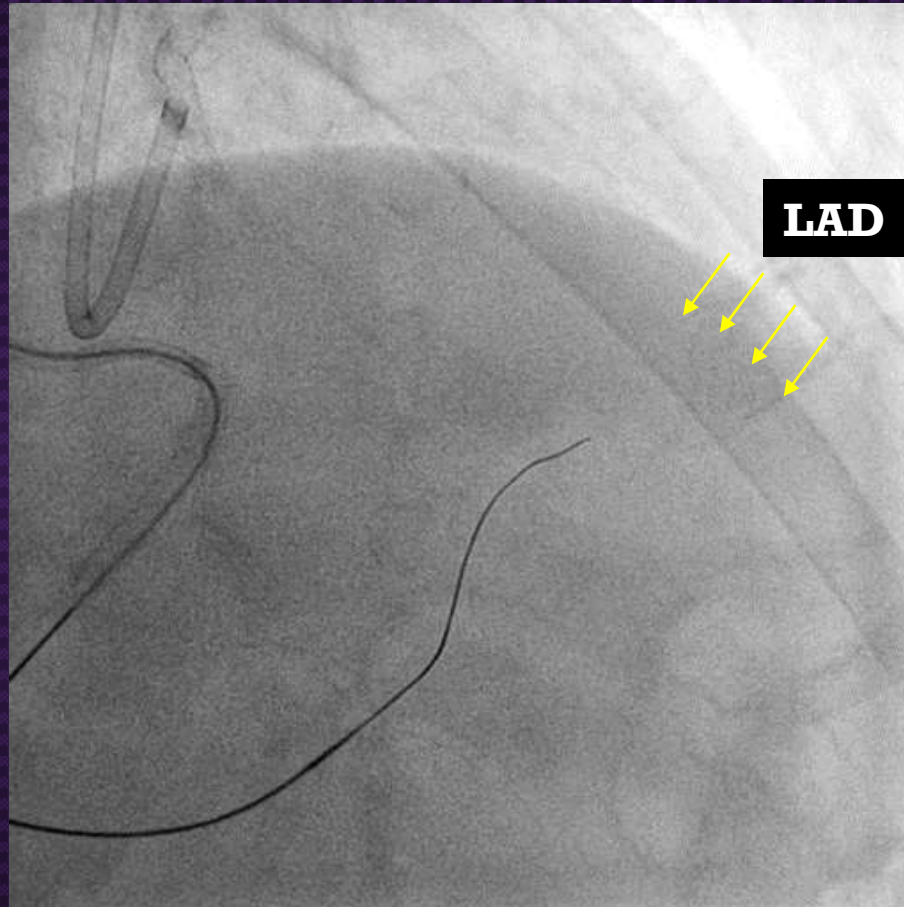
CAU

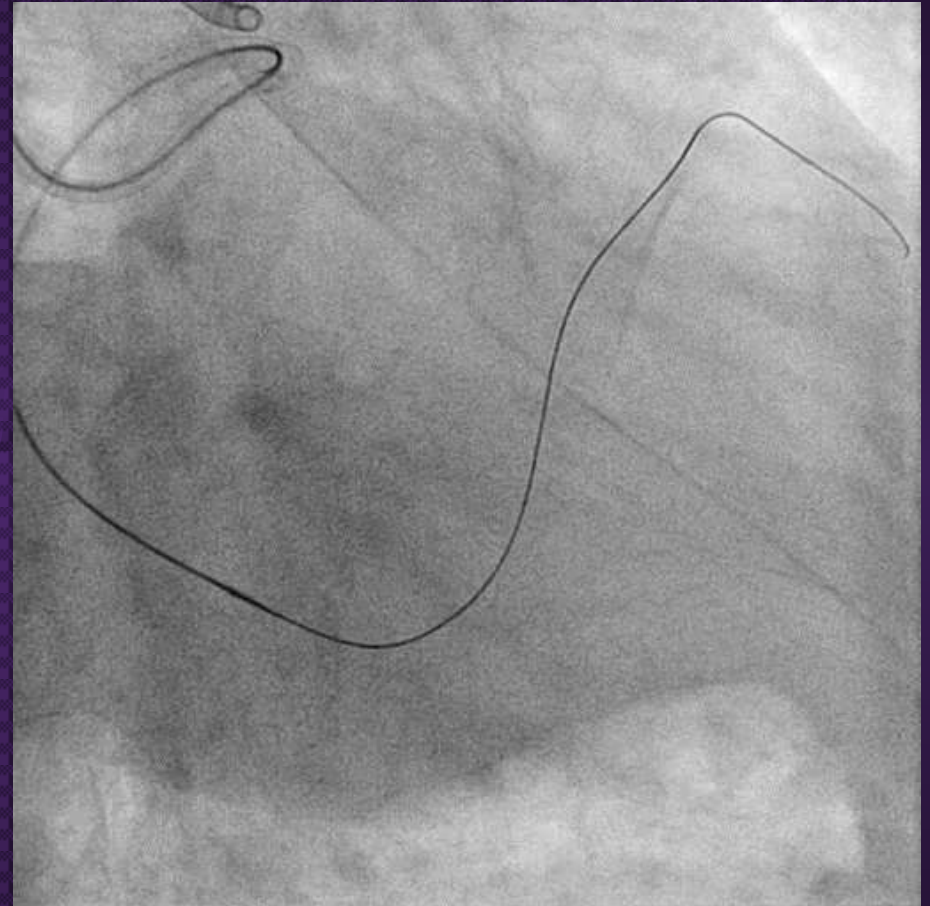
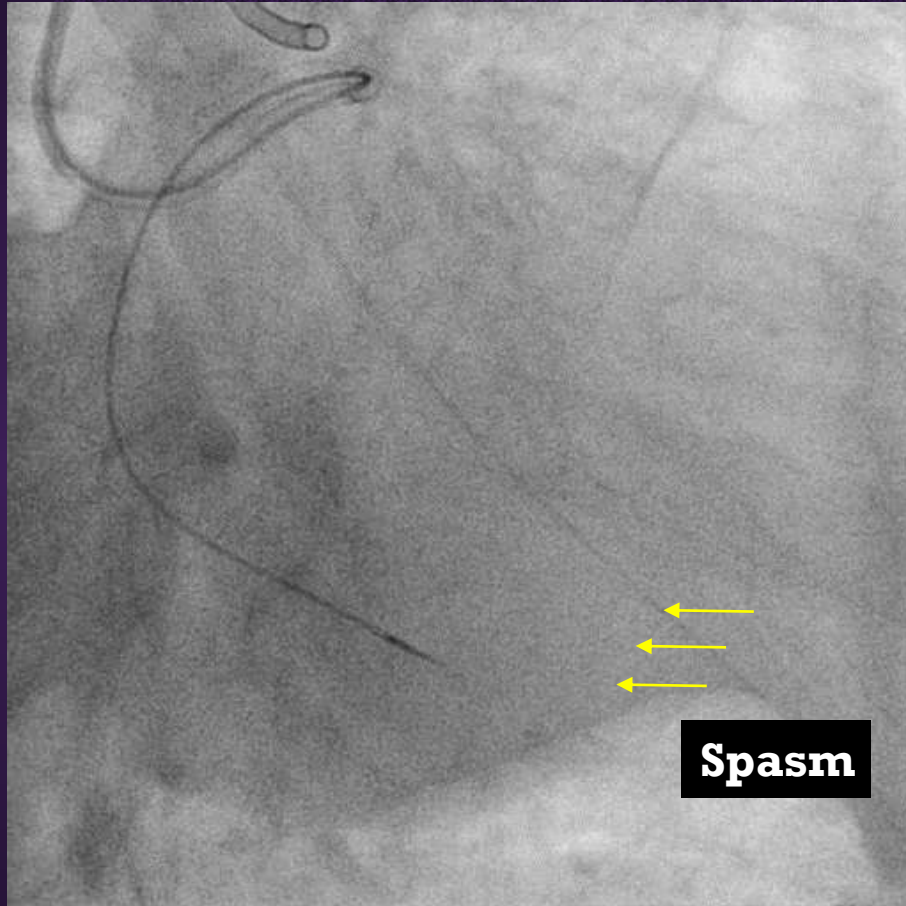
How to Negotiate Collateral Channel?

- Evaluation from different views is very important.
- Visible channel is not always selectable
- Careful evaluation is important



Selection in the other PD branch





Tip injection again

How to Negotiate Collateral Channel?

- Evaluation from different views is very important.
- Visible channel is not always selectable
- Careful evaluation is important
- Selection of wire

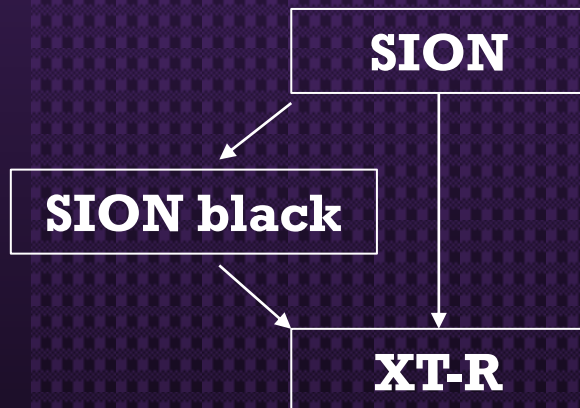
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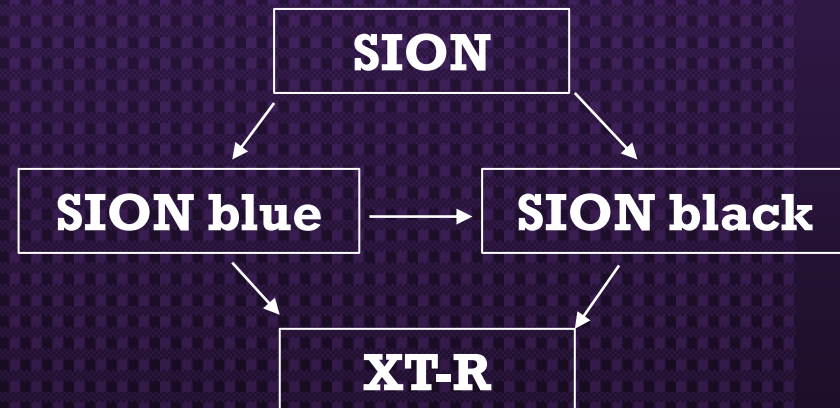
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Septal channel



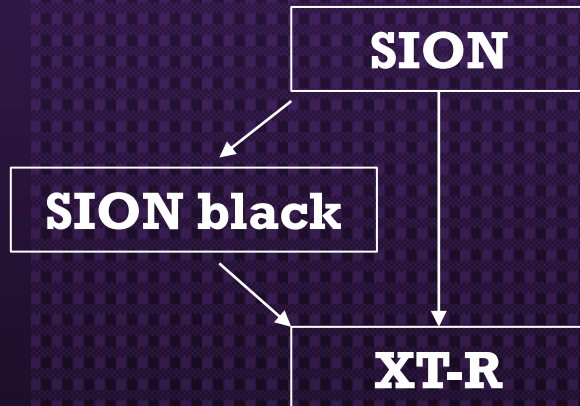
Epicaedial channel



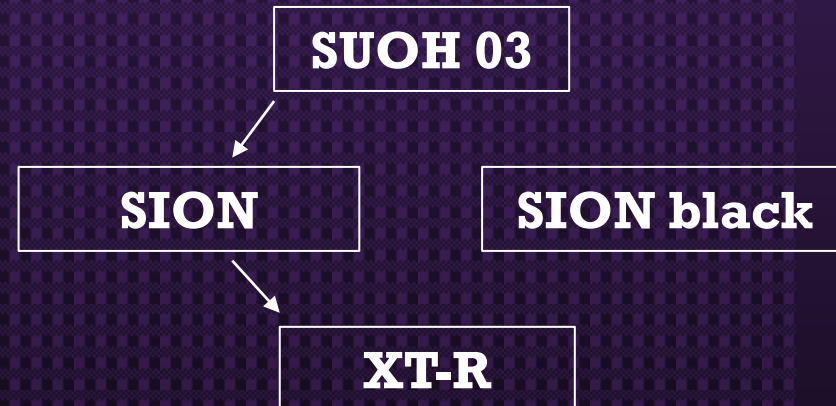
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Septal channel

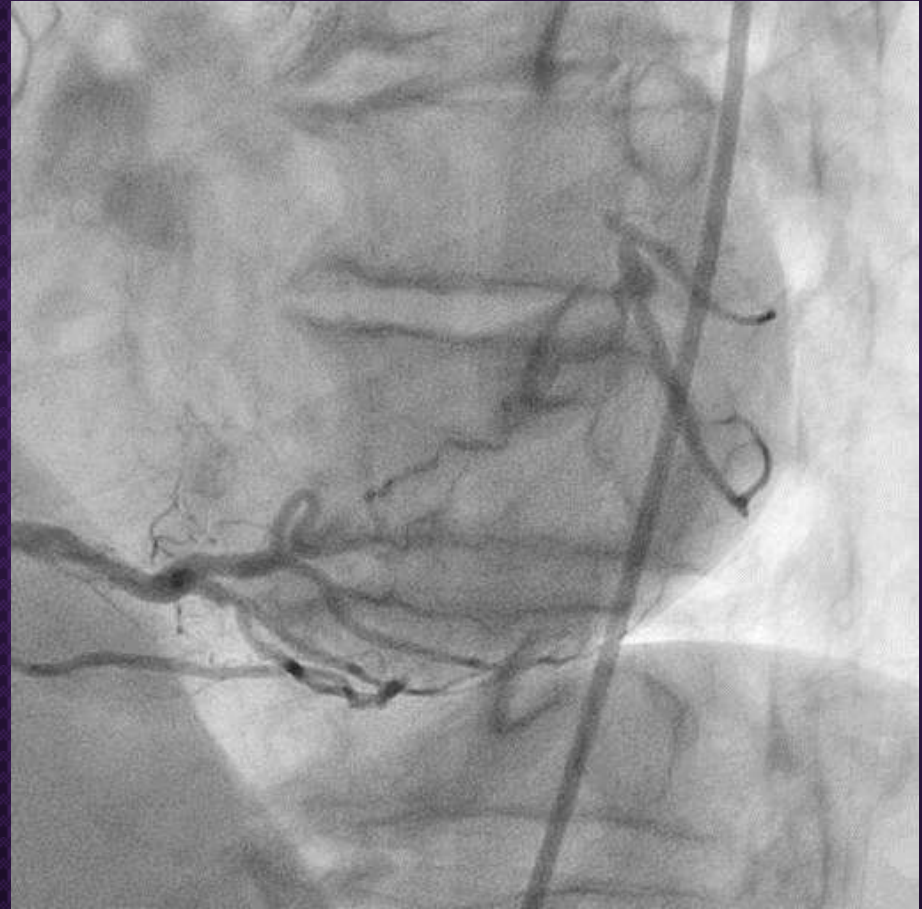
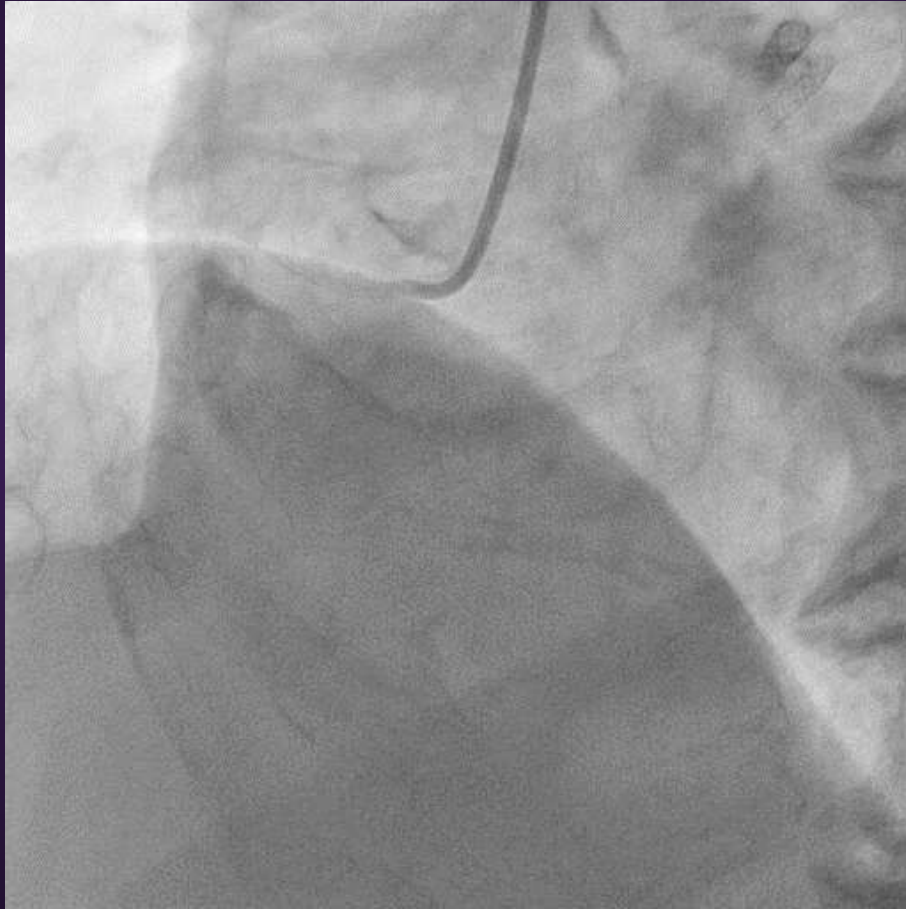


Epicaedial channel

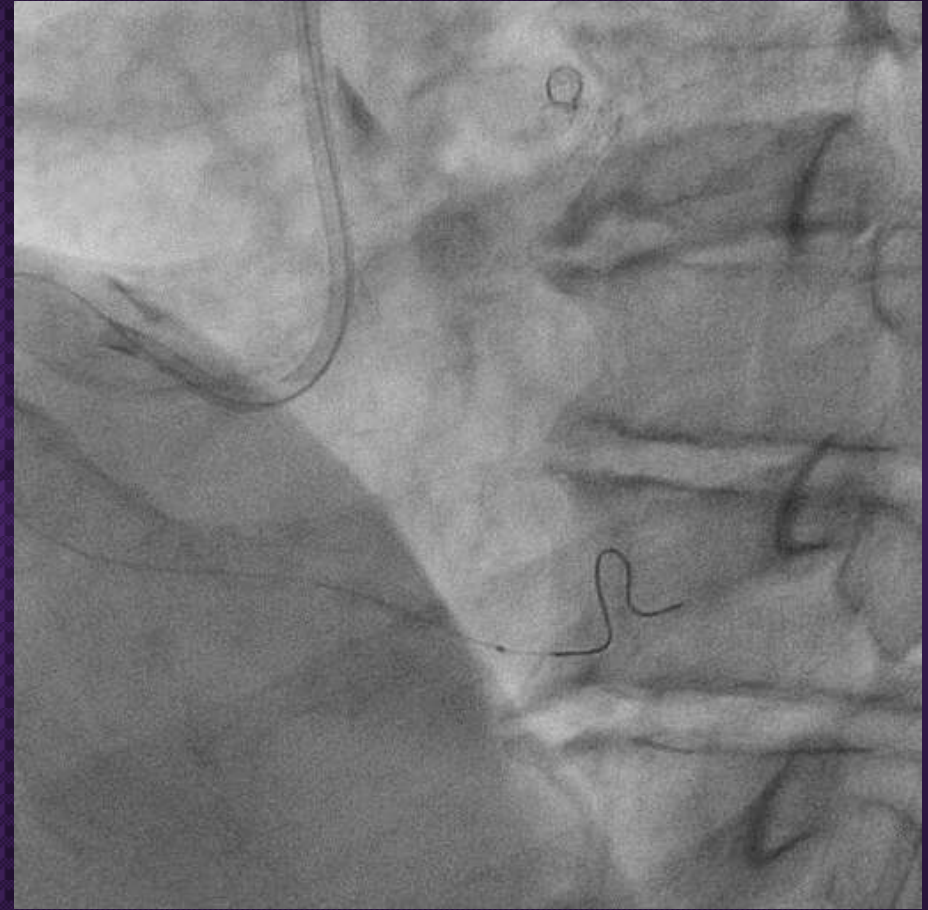
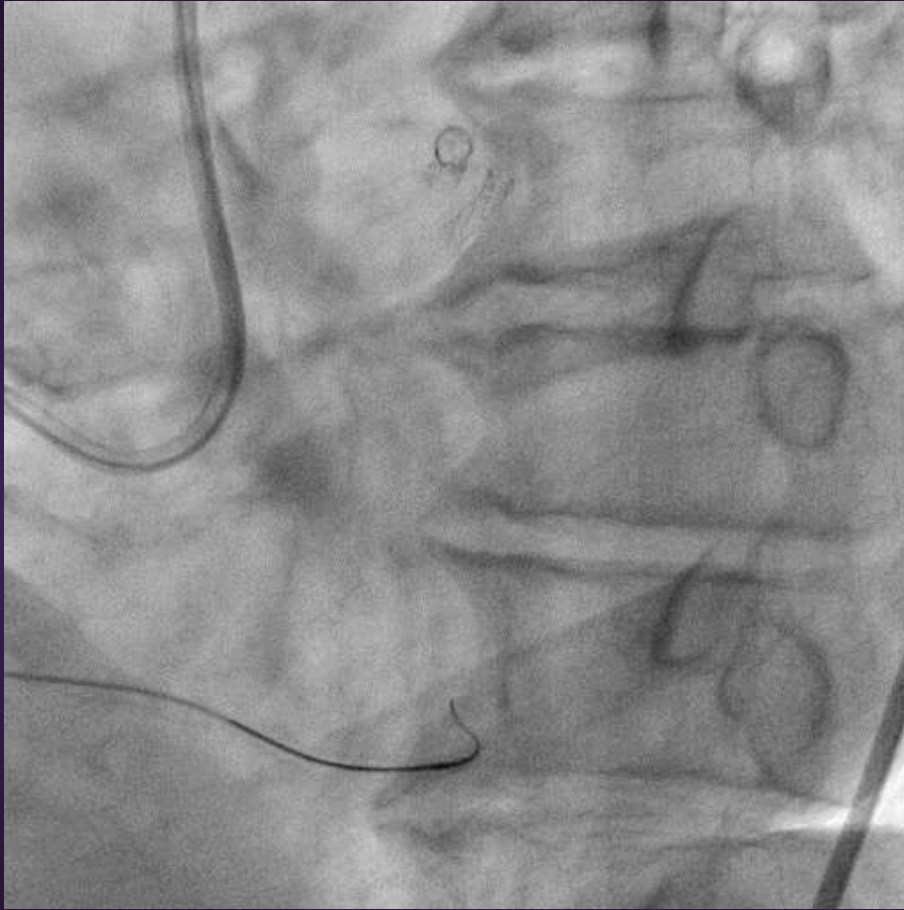


Case 4: Epicardial channel

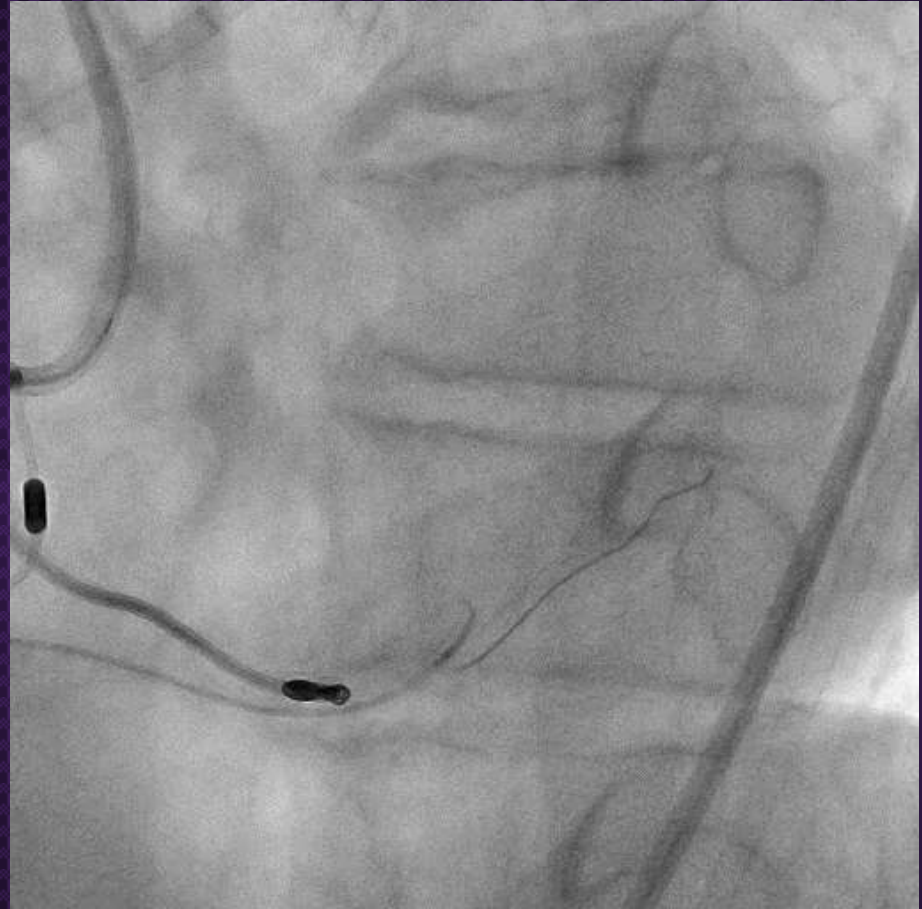
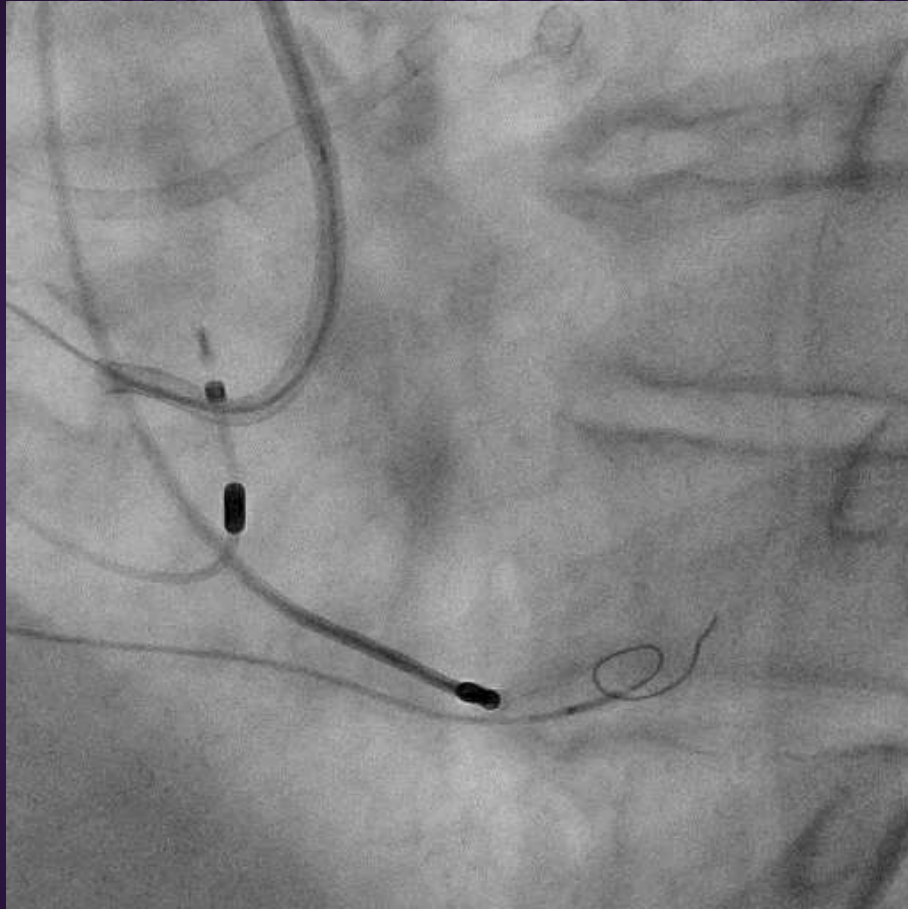
Importance of wire selection



2008. April



**Fielder FC and XT could not
be advanced....**

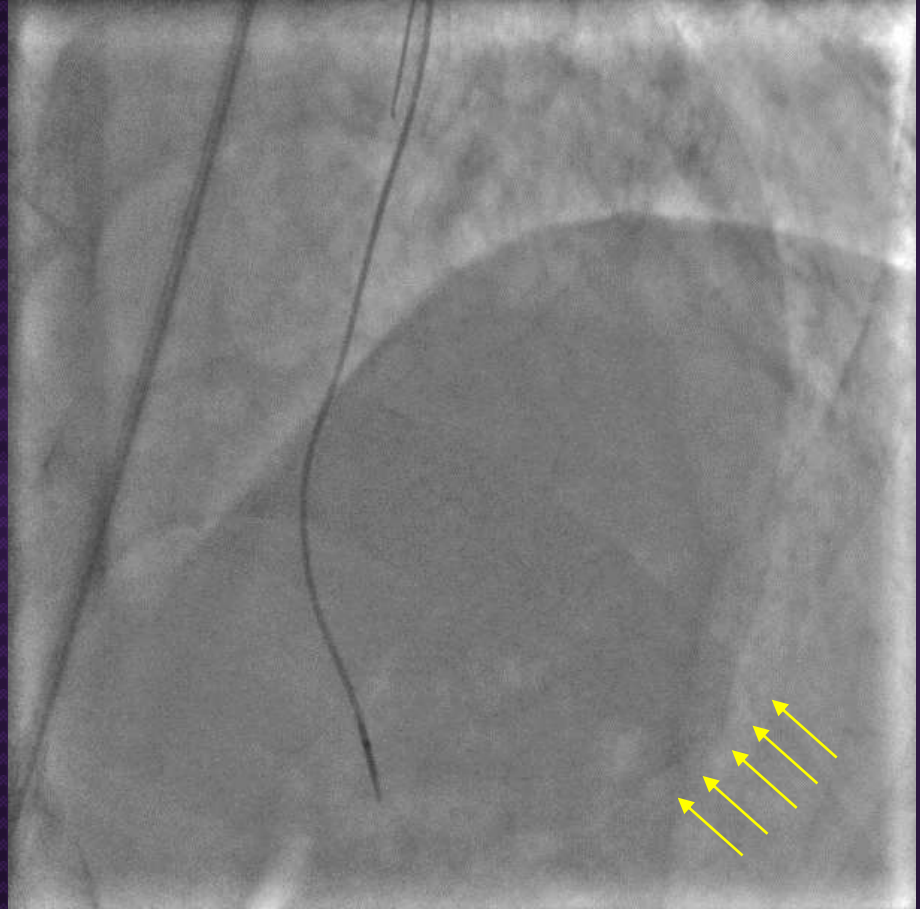
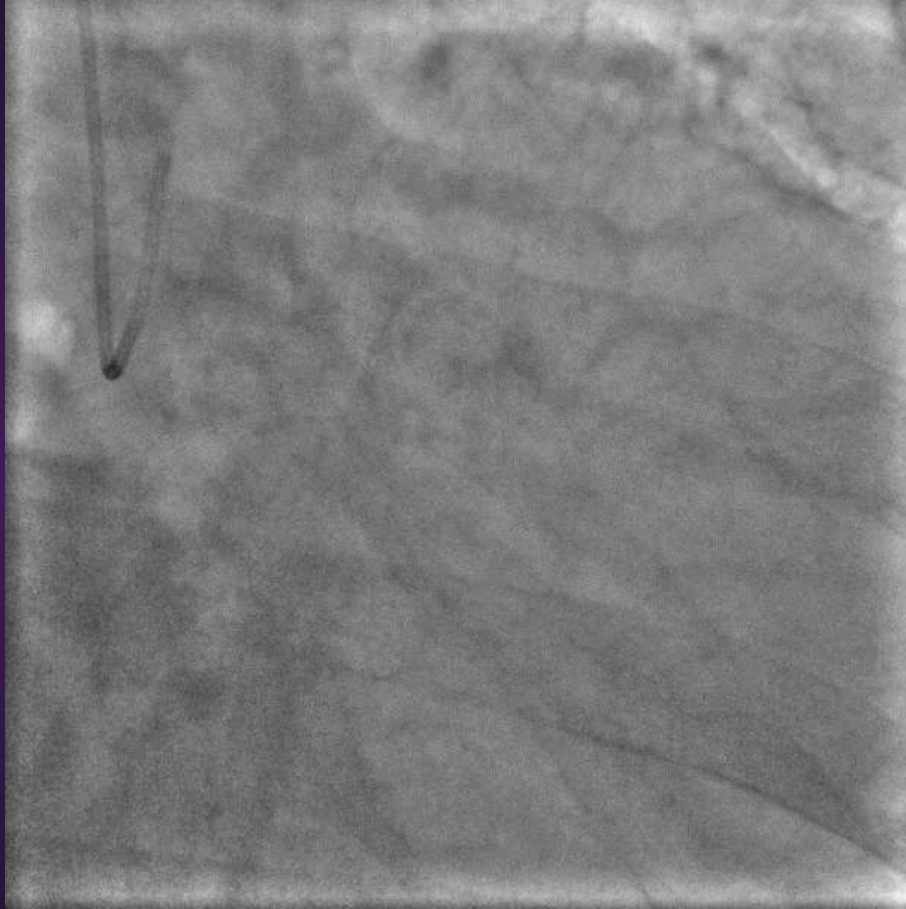


2013. Oct 5 years later
SION Blue could be advanced very easily

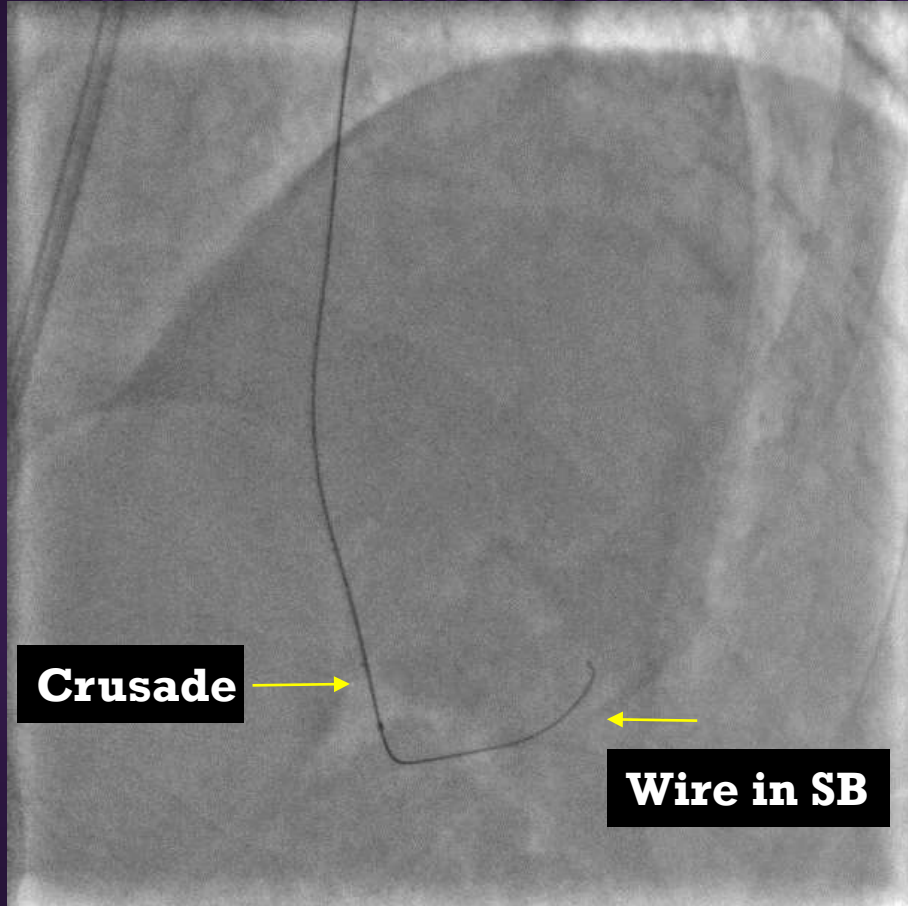
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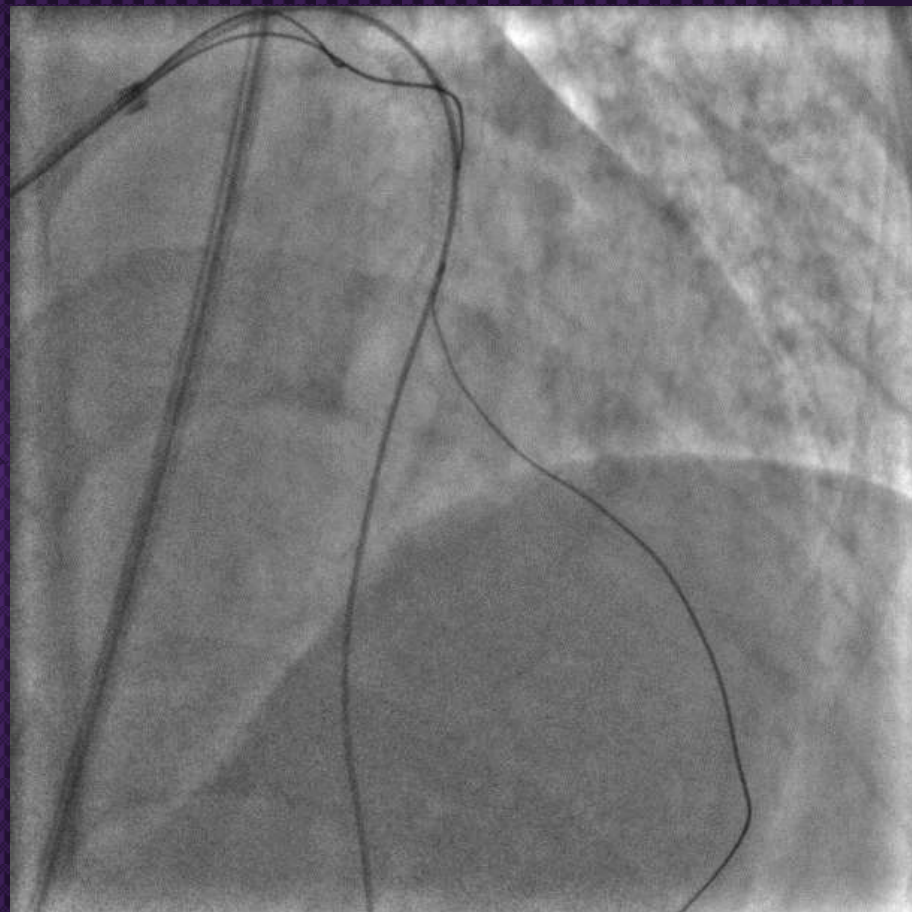
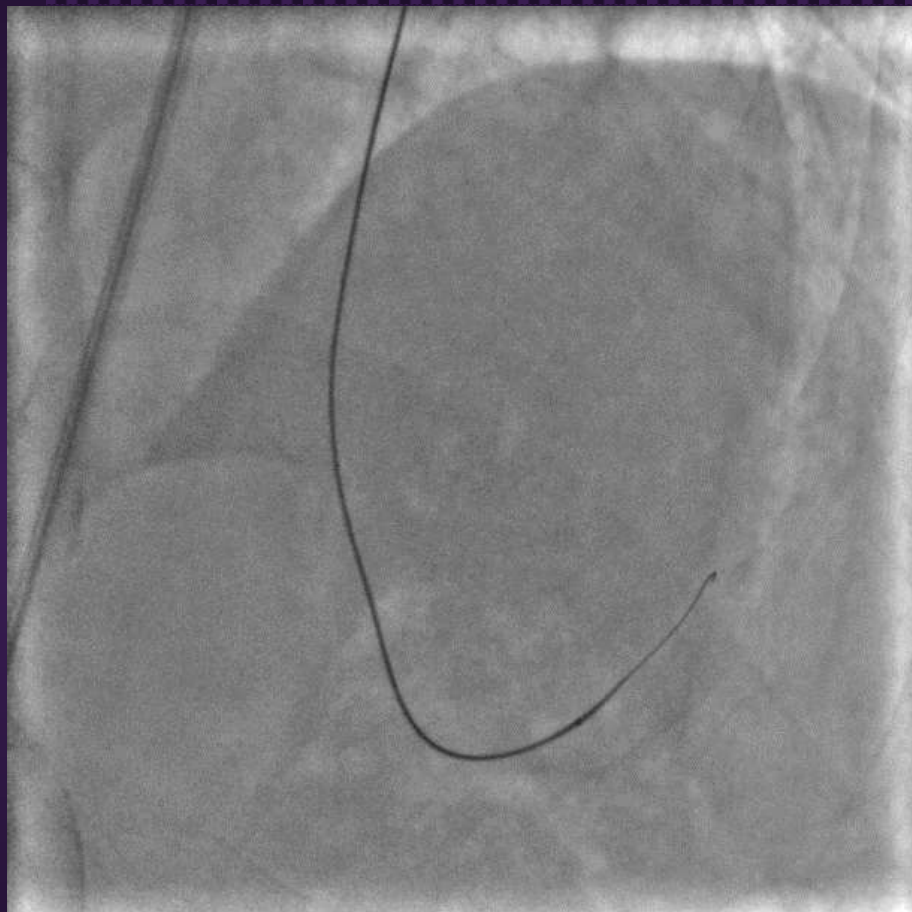
- Evaluation from different views is very important.
- Visible channel is not always selectable
- Careful evaluation is important
- Selection of wire
- Parallel wire in channel

Case 5: Parallel wire in channel



LCX CTO collateral from LAD





Summary

How to Negotiate Collateral Channel?

1. Evaluation of channel

Tip injections from several directions are mandatory to understand channel morphology.

2. Selection of wire

Safer is better.

Our strategy will be changed in epicardial channel tracking after launching SUOH 03.

3. Visible channel is not always selectable.

Please be careful small bifurcation in channel.

Parallel wire technique using by Crusade is useful.