Septal Channel: How to Pass

CTO: Retrograde Channel Technical Forum and Current Pitfalls and Evidence of CTO-PCI

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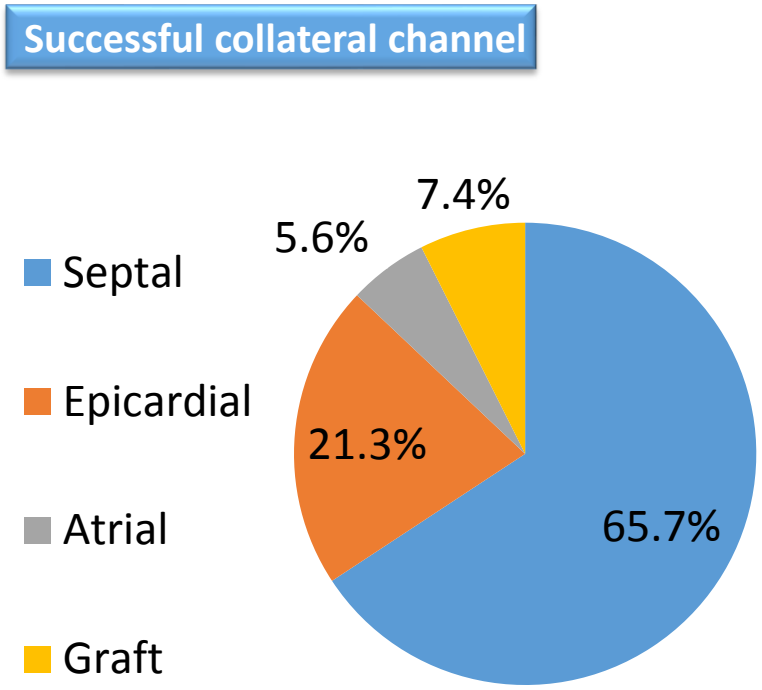
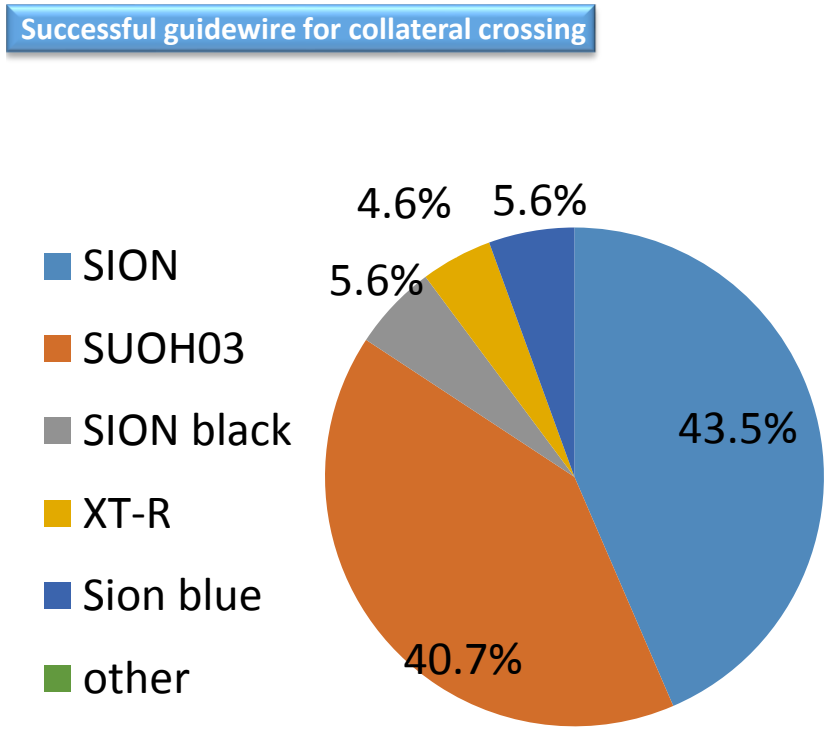
Crossed collateral channel and wires in 2016





Characteristics of Collateral Channels

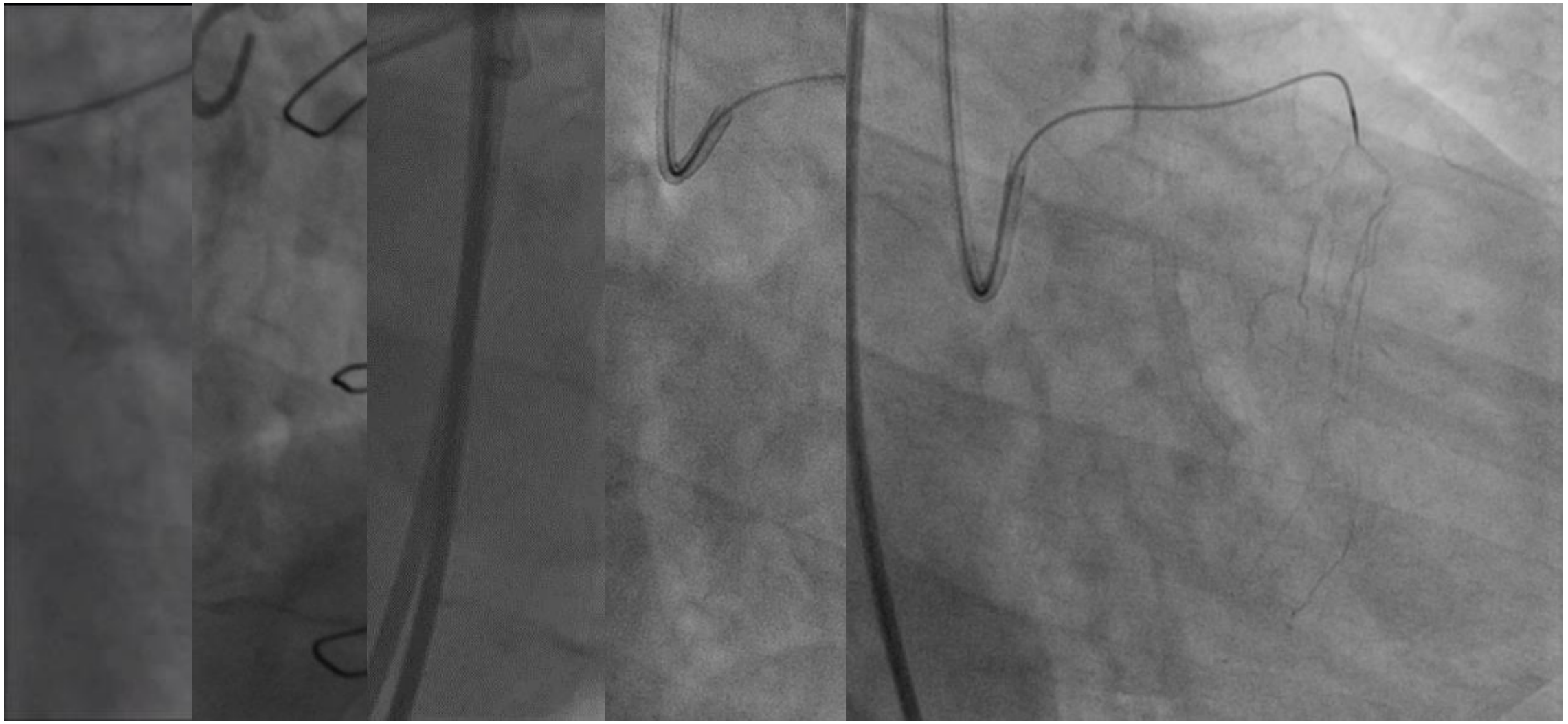
	corkscrew-like morphology	inelastic vessel / stenosis	length of access route	distensibility	availability
epicardial	significant	potentially	long	not dilatable	low (<5%)
PL channel	moderate - slight	occasionally	long - moderate	not dilatable	moderate (>20%)
atrial	moderate	occasionally	moderate	not dilatable	low (<10%)
septal	moderate - slight	rarely	short	dilatable	high (>50%)

Identifying appropriate channel

Anatomical determinants of successful septal channel crossing

determinants	wire crossing		p-value
	difficult/ failed	easy	
number	42	96	
CC (1 / 2)	19:23	42:54	0.8700
anatomical type of septal branch (1+2 / 3)	14:28	49:47	0.0540
selected septal branch (s1-2 / s>=3)	18:24	54:43	0.1600
corkscrew (severe-mod / mild-non)	18:24	16:80	0.0010
excessive bend (yes / no)	15:27	16:80	0.0140
side branch at bend (yes / no)	24:18	11:85	0.0001
acute bend at origin/destination (yes / no)	14:28	9:87	0.0005
direction of approach (PDtoLAD / LADtoPD)	10:32	27:69	0.6000

Collateral pathways of septal branches



Some special techniques for septal channel crossing

- Guide wire selection
- Landmark wire technique
- Rotational angiogram
- Double lumen catheter usage
- Reverse wire technique
- Balloon occlusion technique

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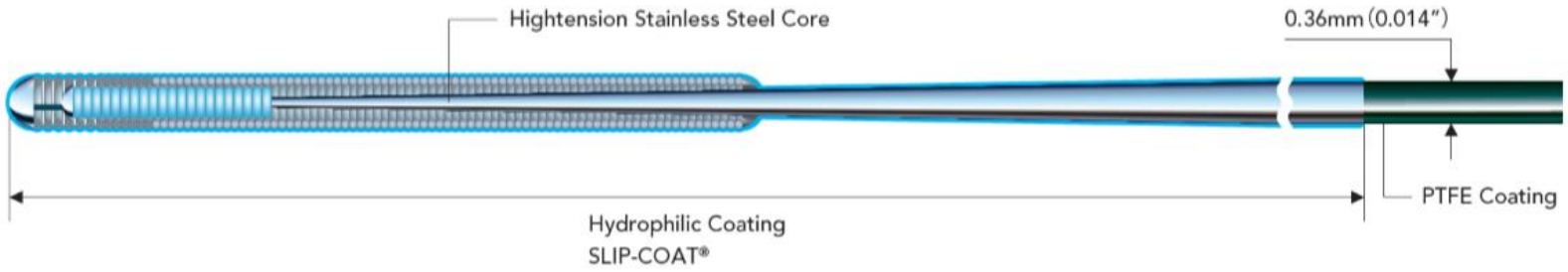
SUOH03



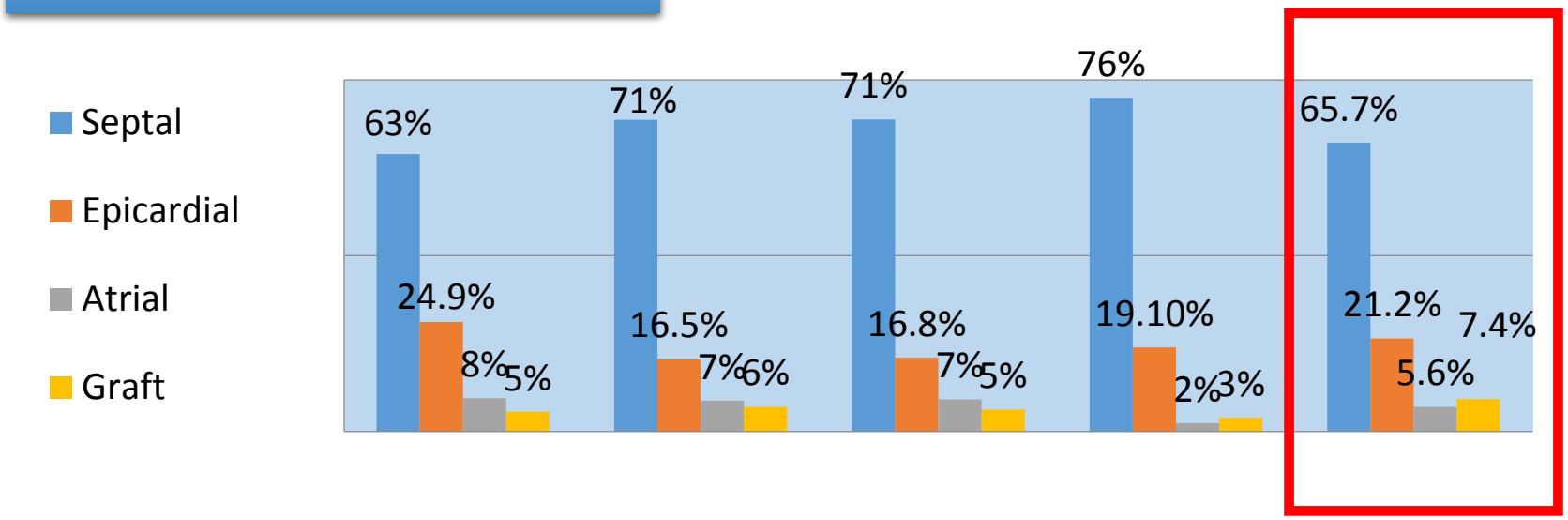
● Coating: Full Hydrophilic Coating	52cm
● Wire length	190cm
● Coil	19cm
● Radiopaque	3cm
● Tip Load	0.3gf
● Tip Shape	Straight/ Pre-shape

Annual change

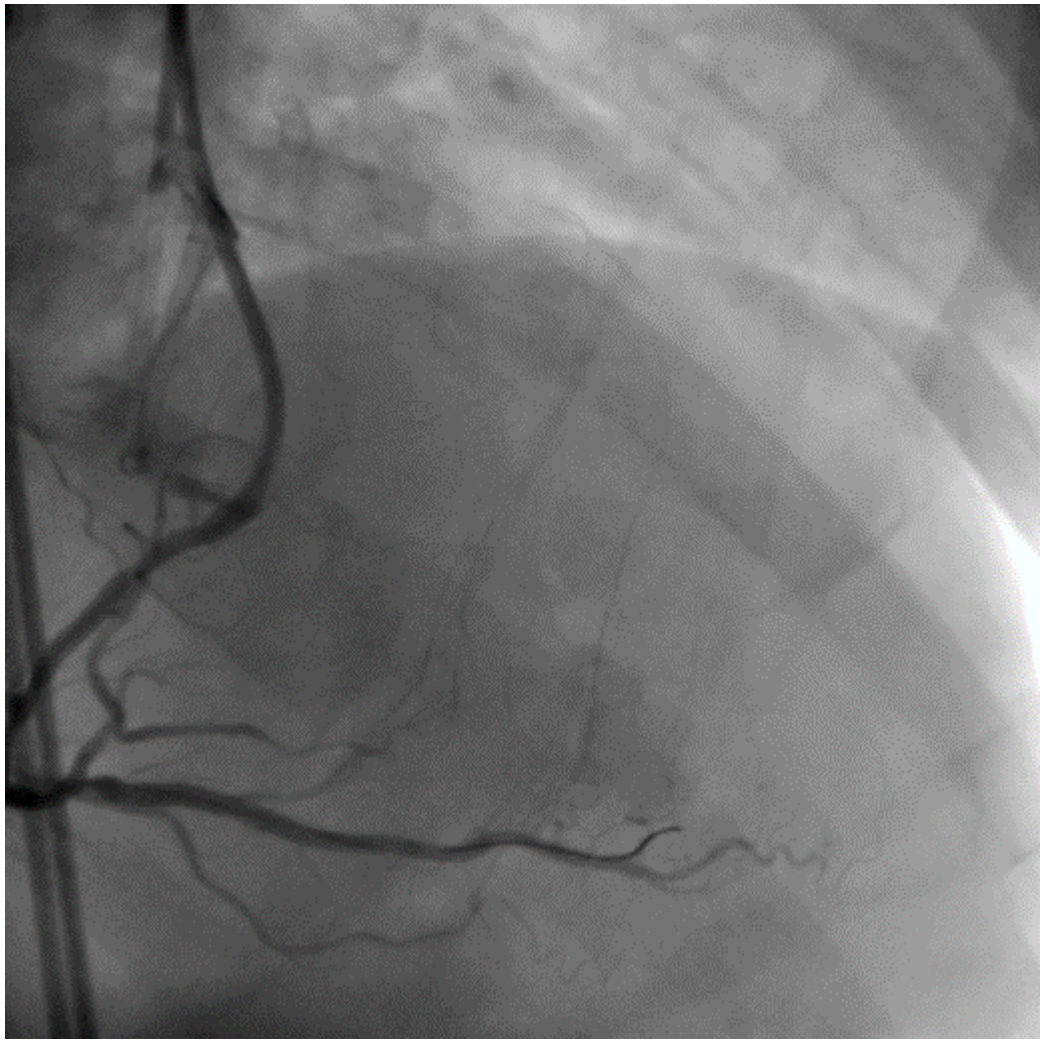
Collateral channel crossing

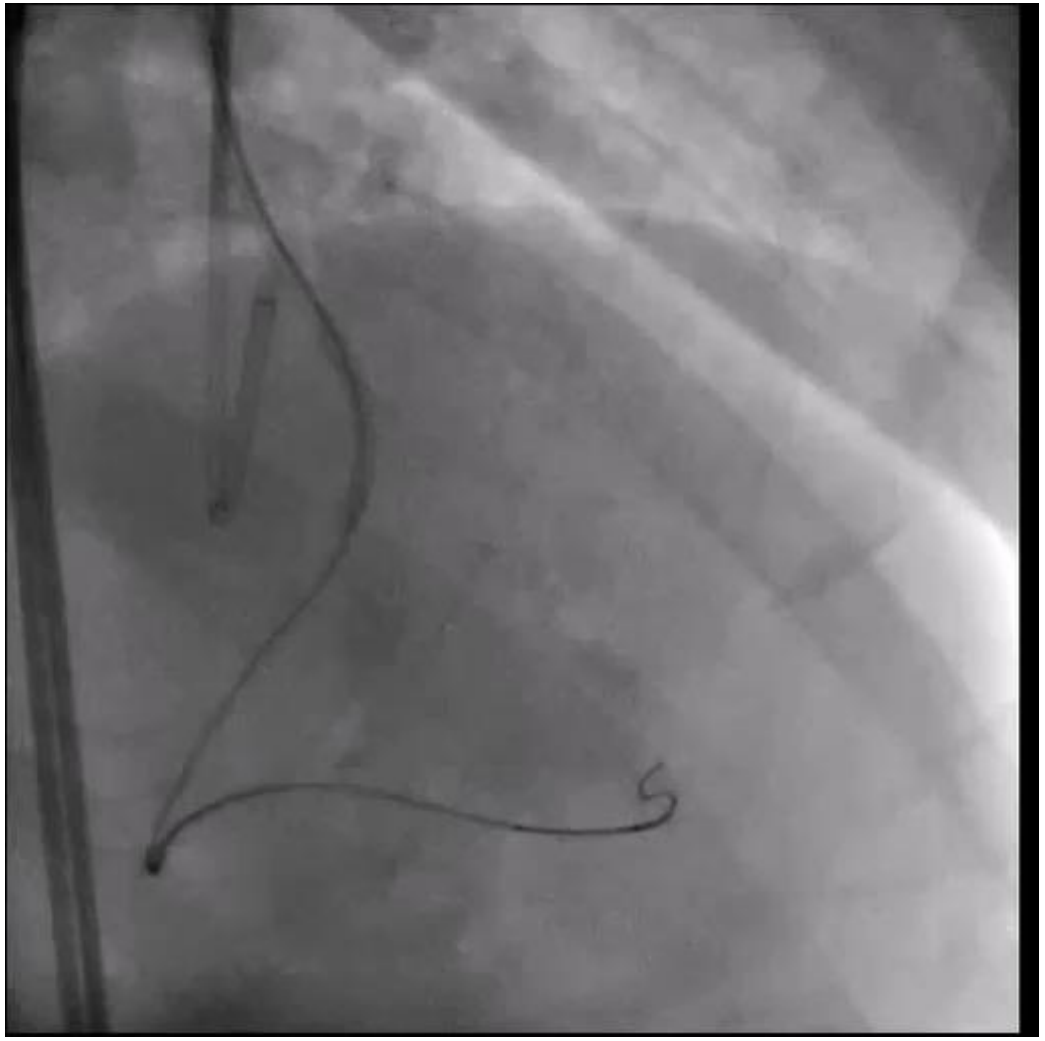
	2012 (490)	2013 (538)	2014 (281)	2015 (218)	2016 (138)	P
Guidewire cross success	**77.6% (380)**	**76.4% (411)**	**76.5% (215)**	**78.9% (172)**	**78.7% (108)**	**0.37**

Successful collateral route



Wiring to septal channel by SUOH03





Wire selection for septal channel crossing

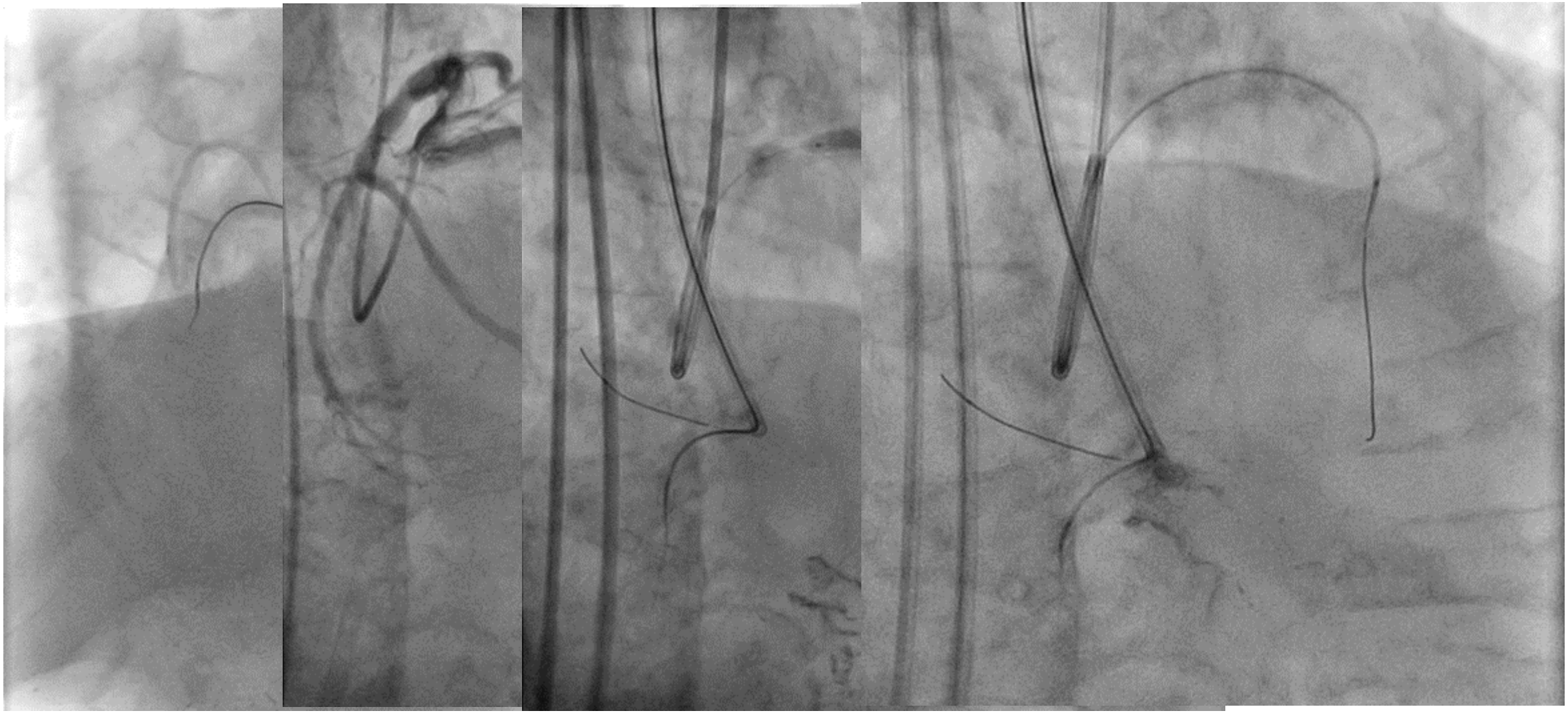
Until target branch selection

- SION,SION Blue, or other workhorse floppy wires

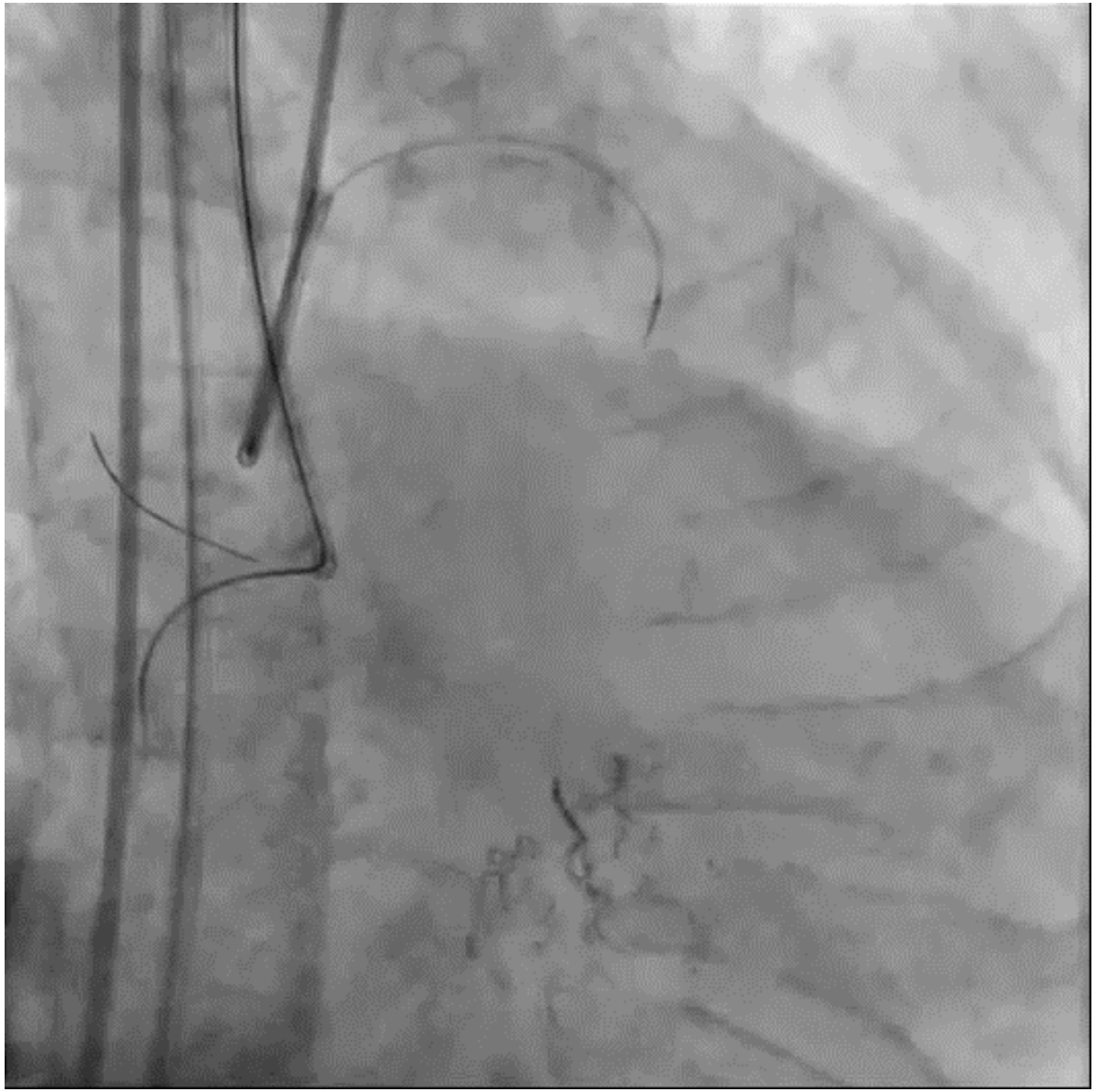
After target channel isolation and tip injection

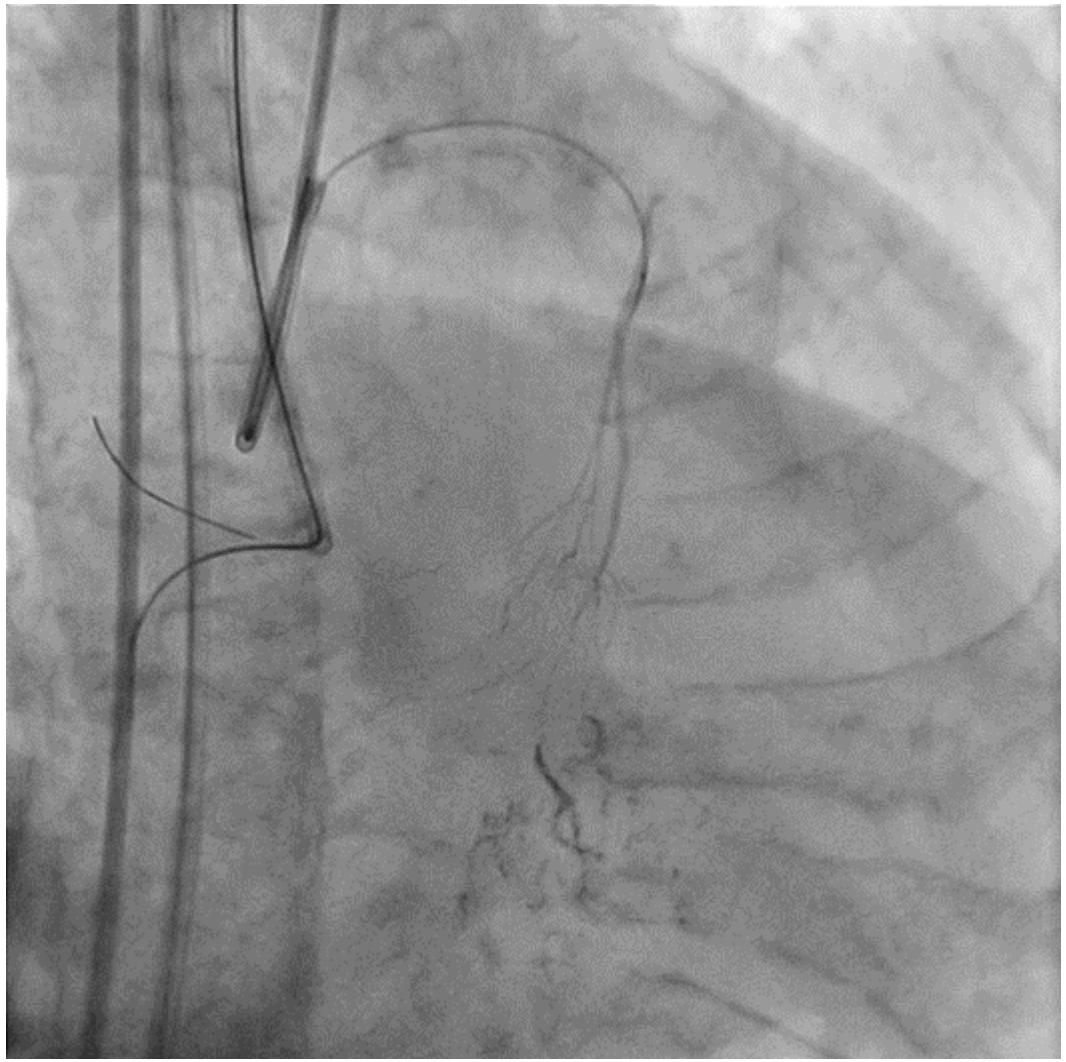
- SUOH03

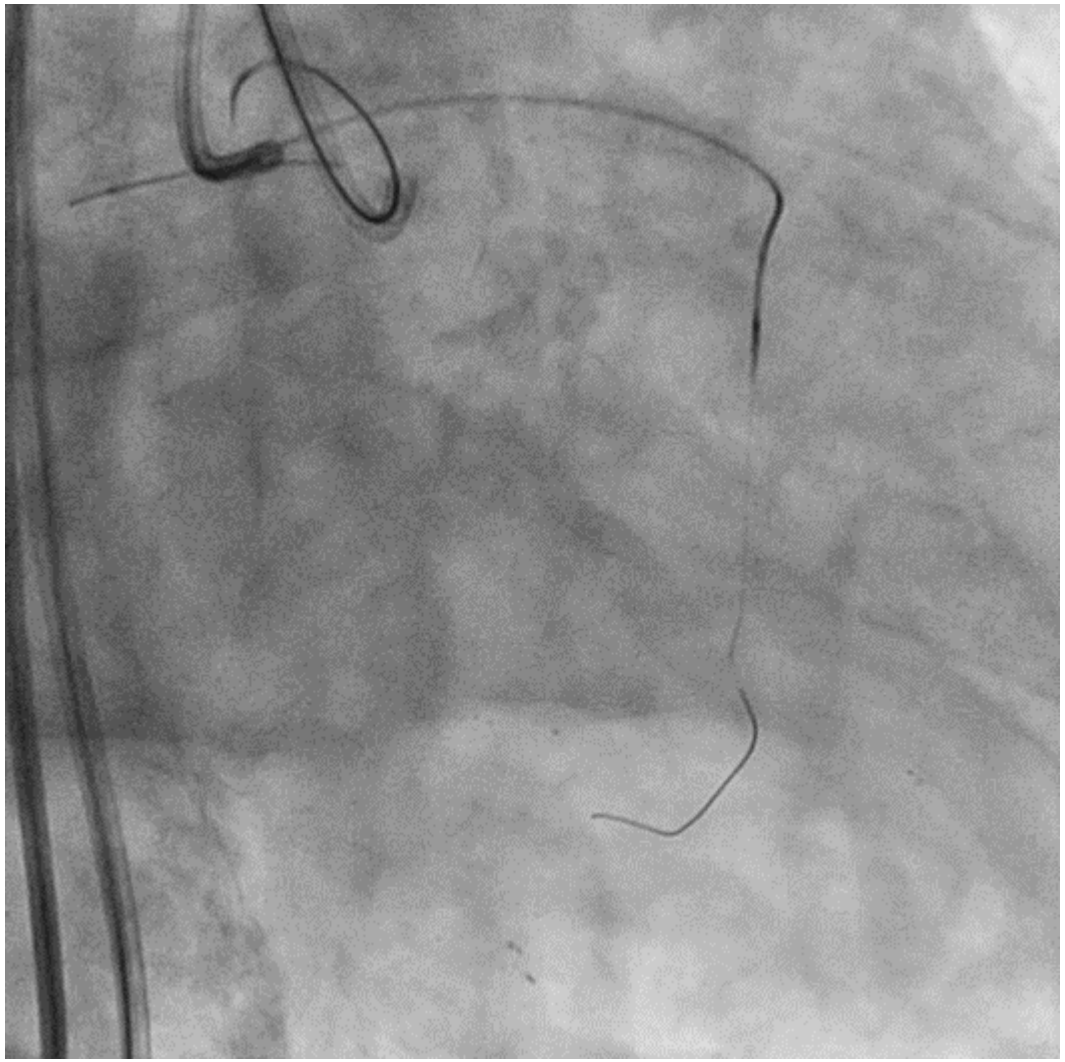
RCA CTO reattempt



Tip injection to 1st septal branch

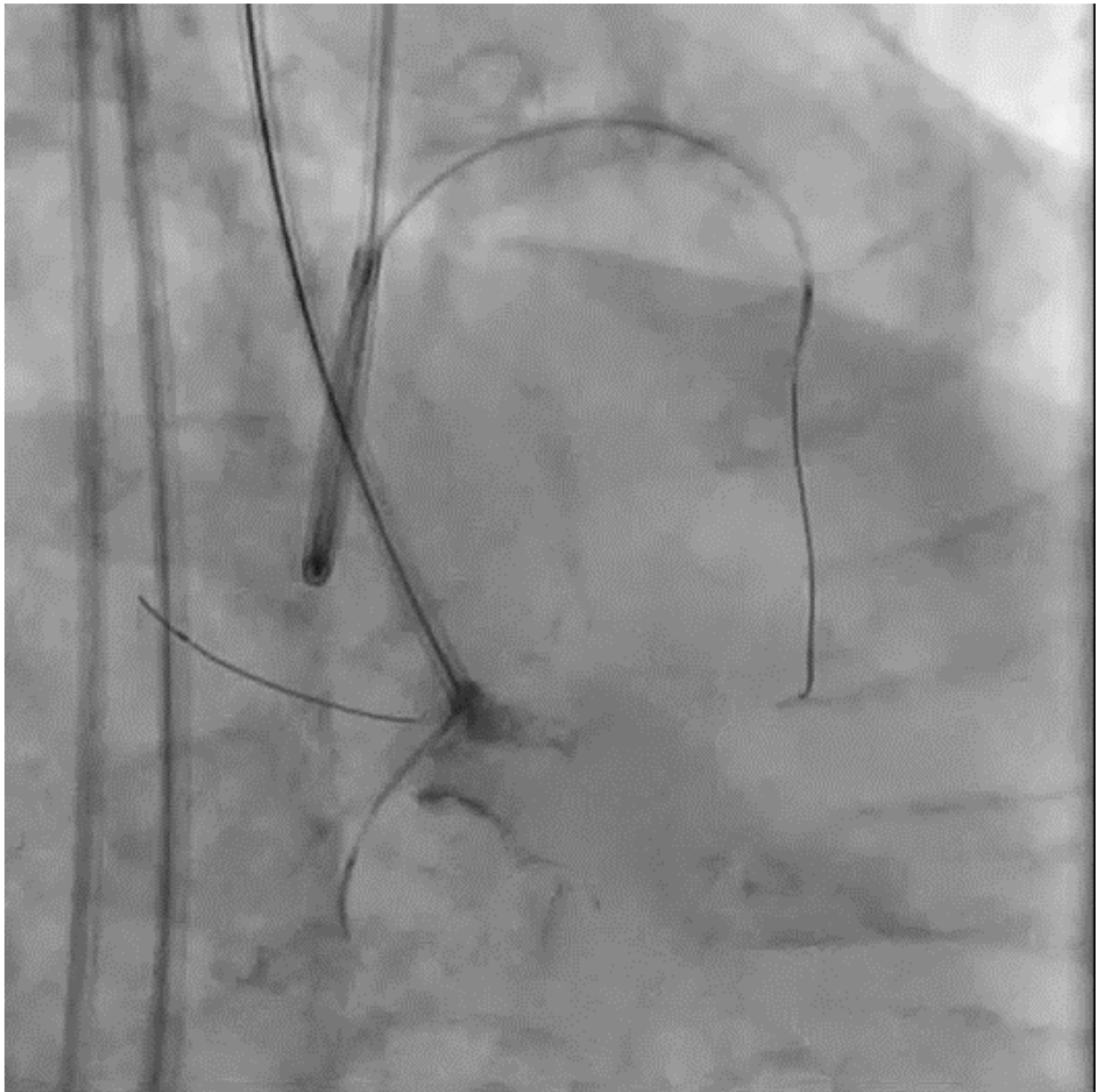


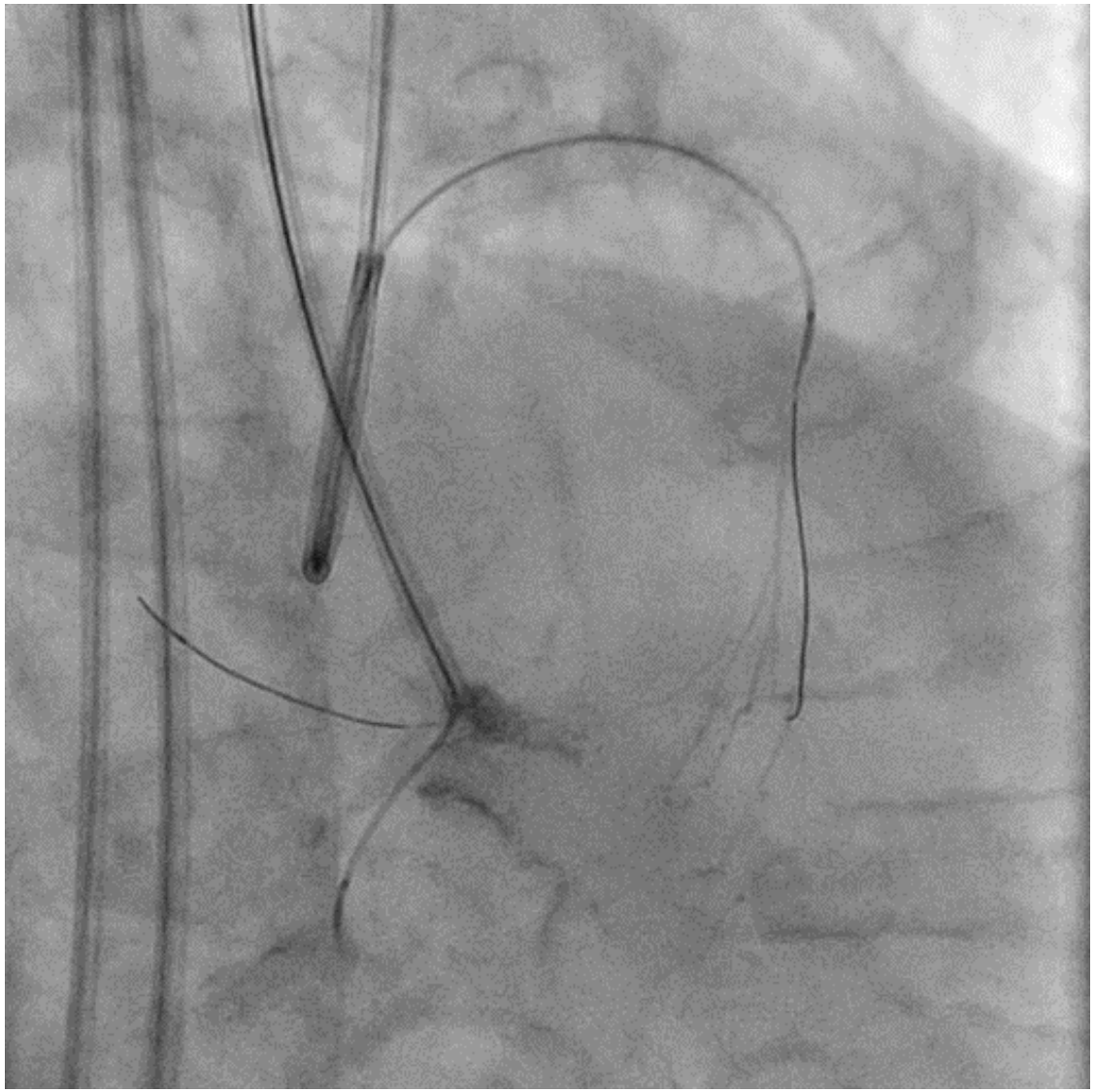


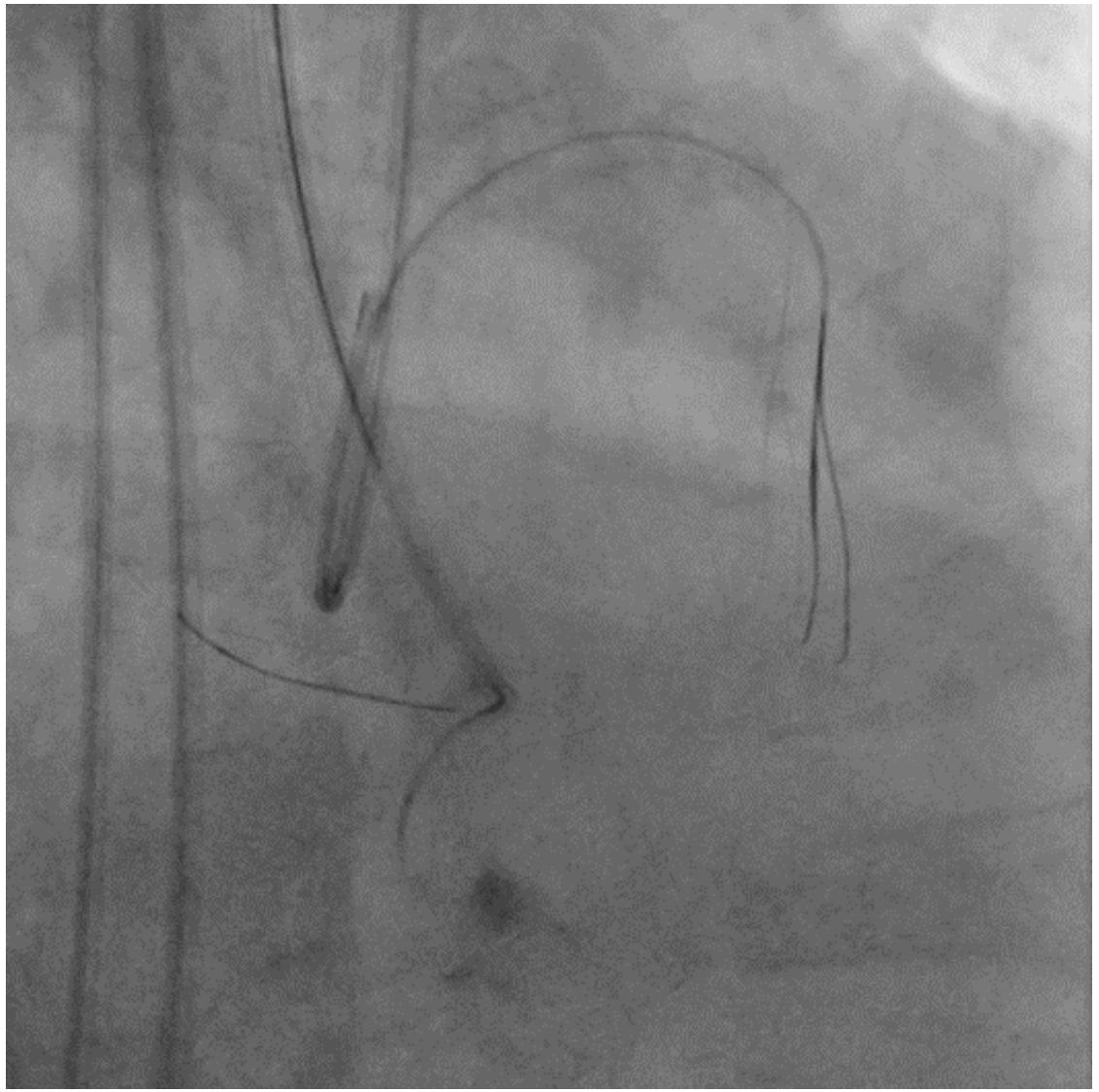


Road map

Landmark wire technique







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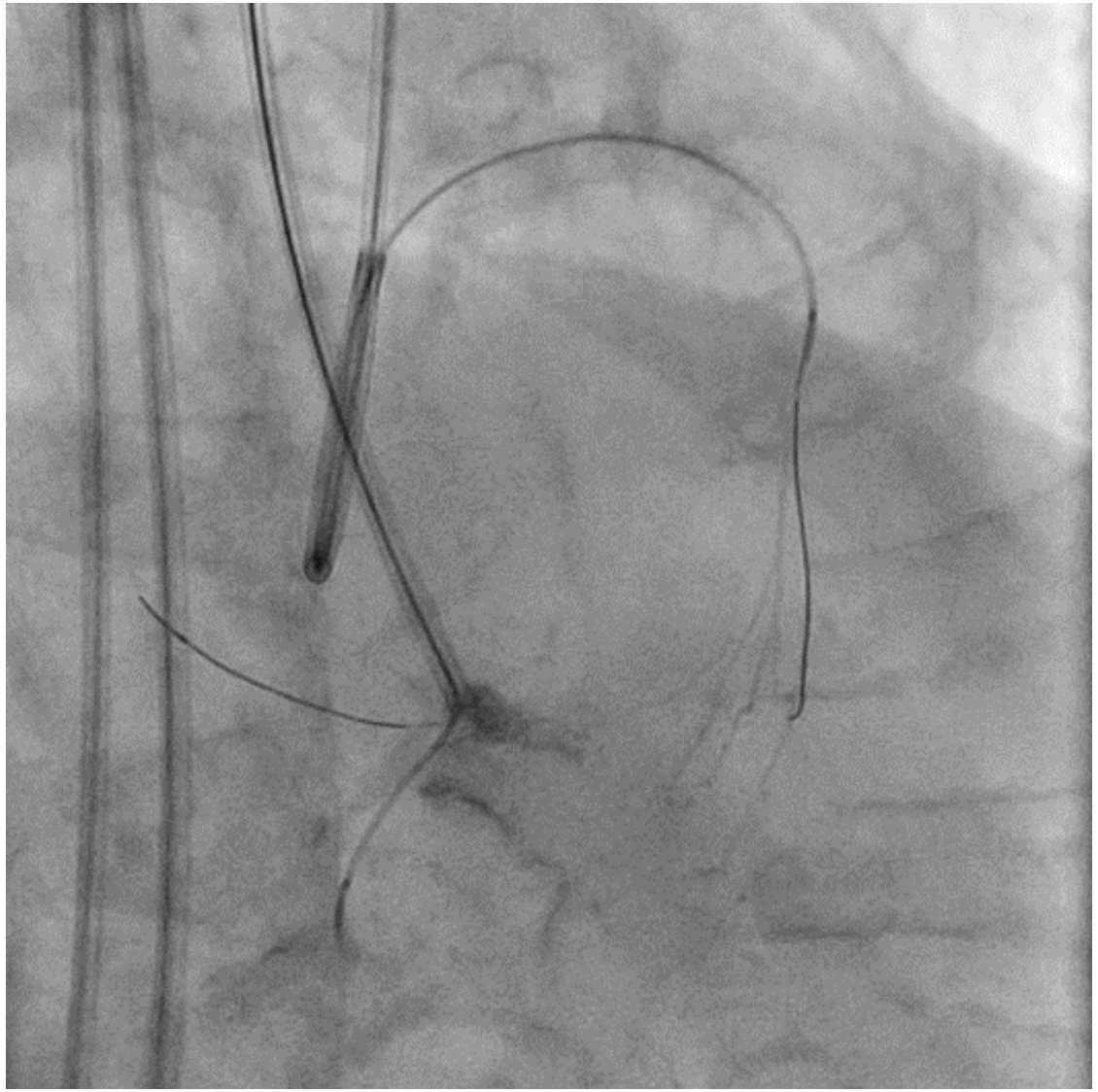

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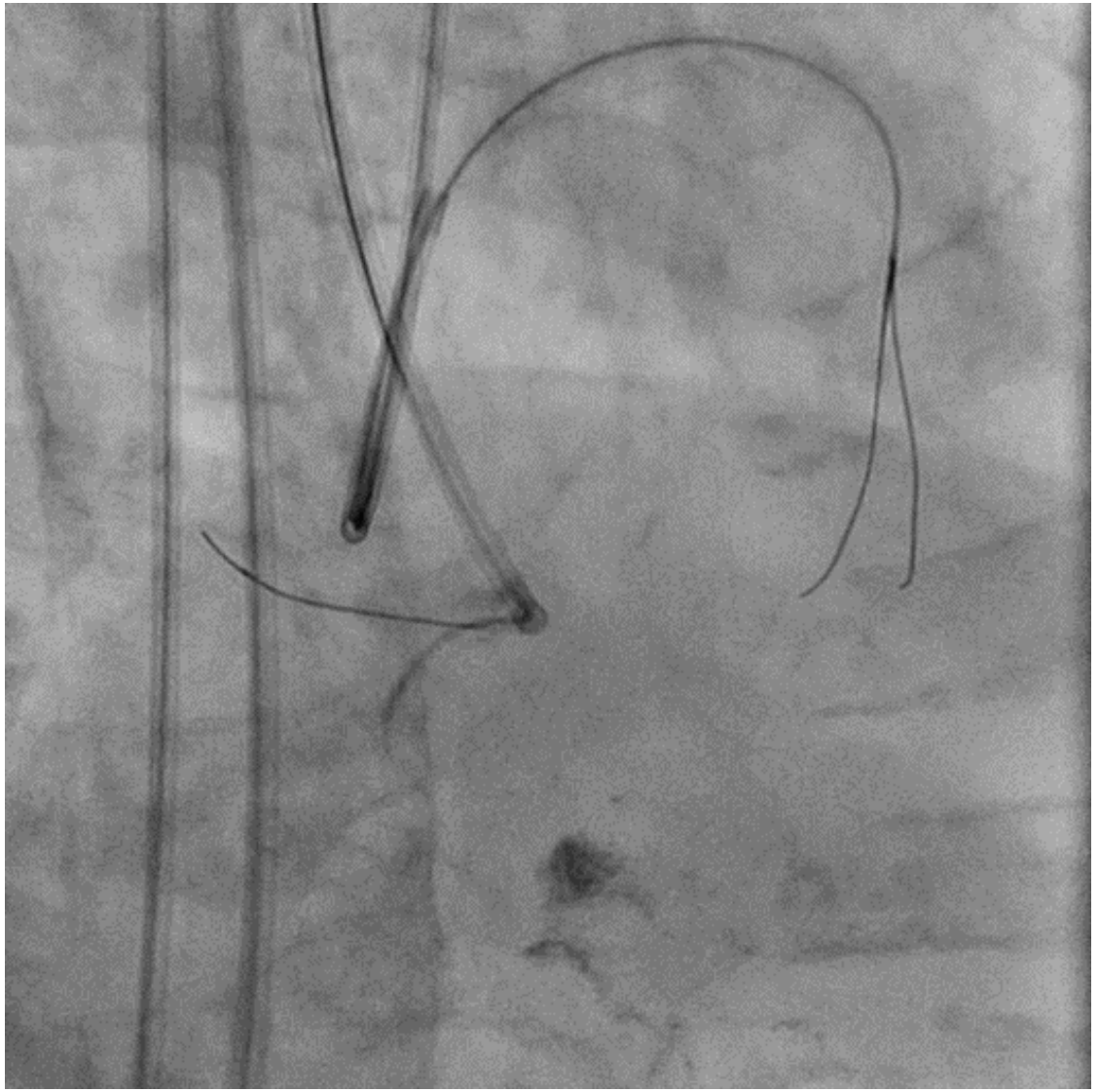

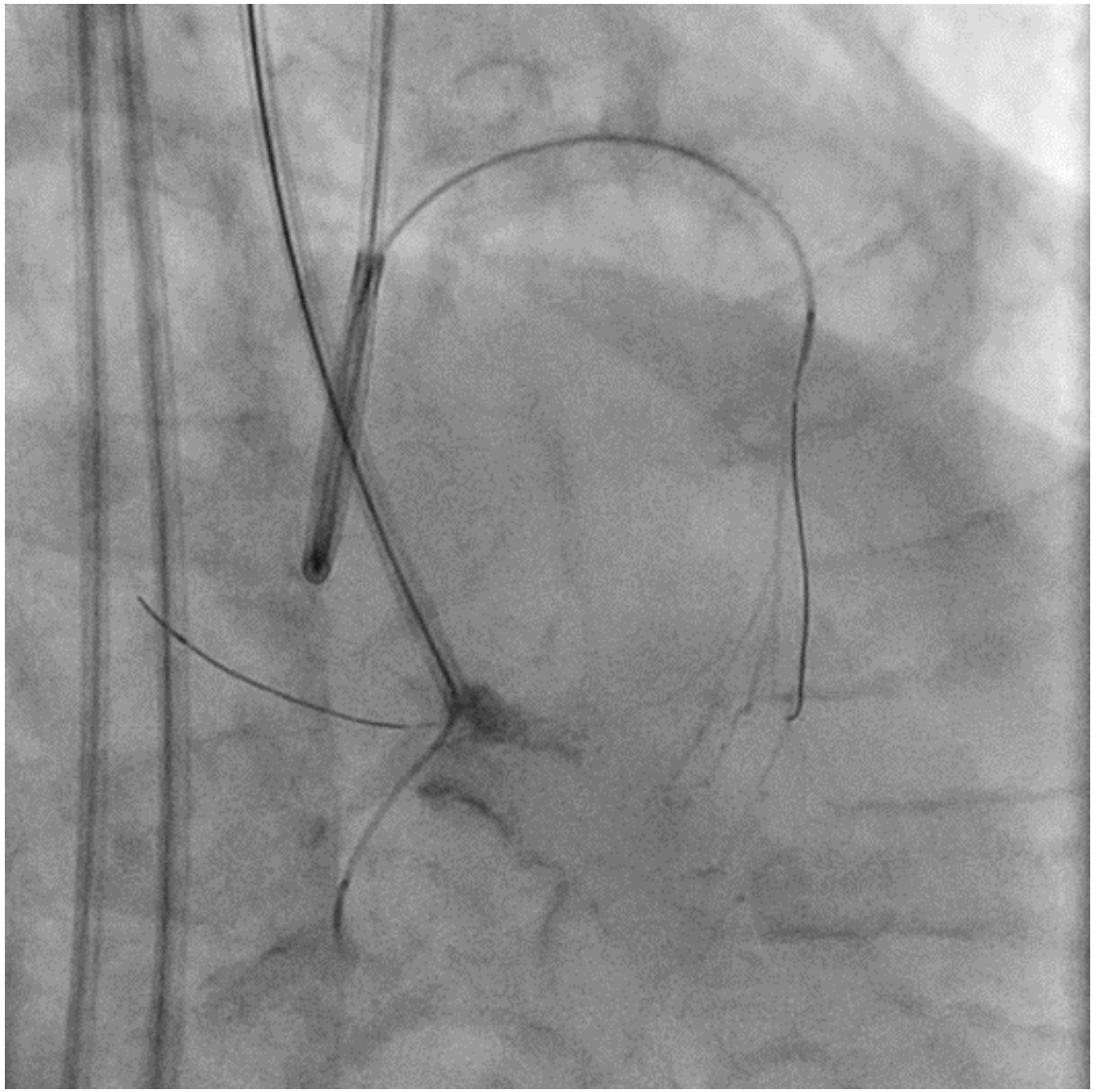

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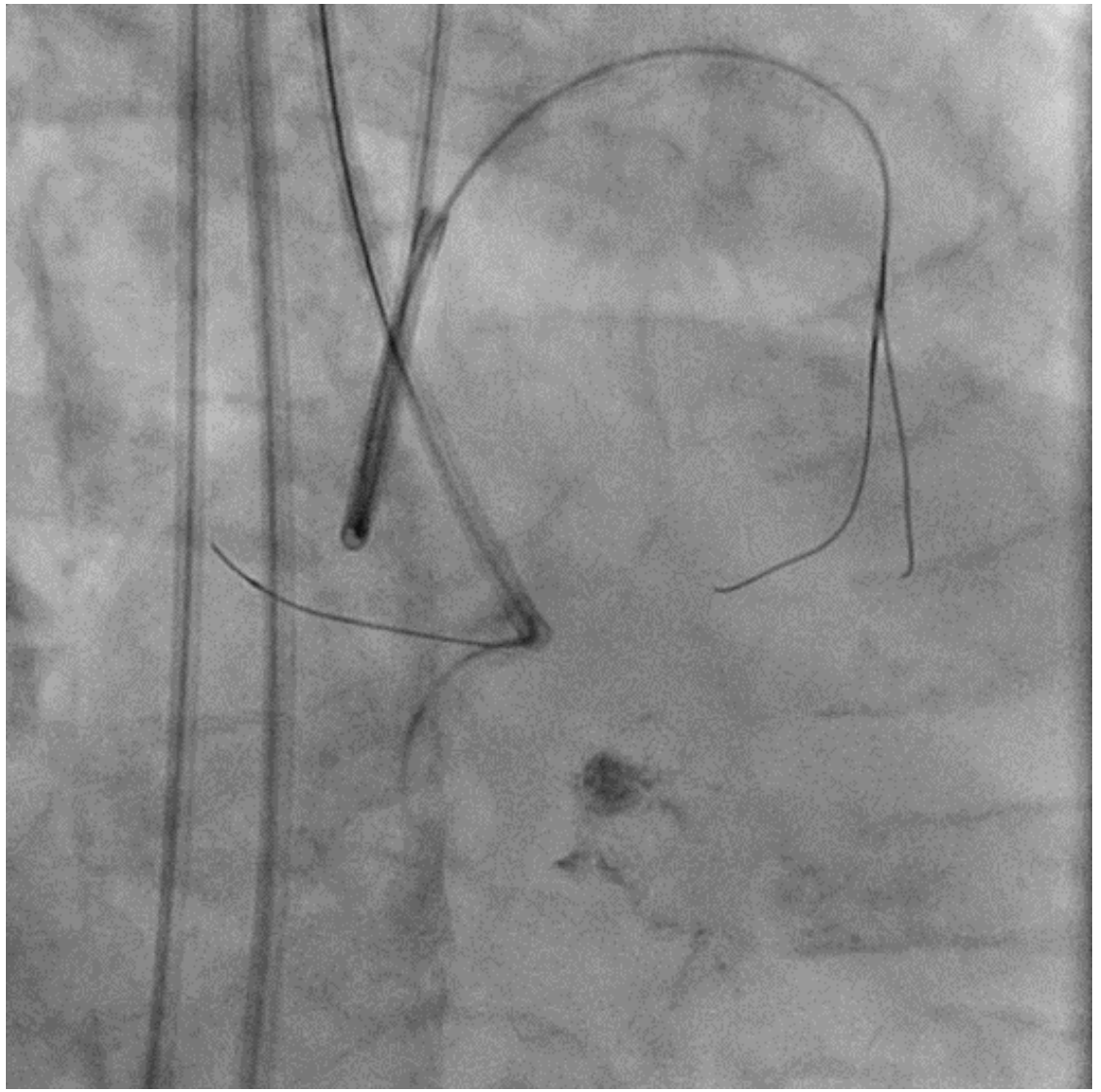
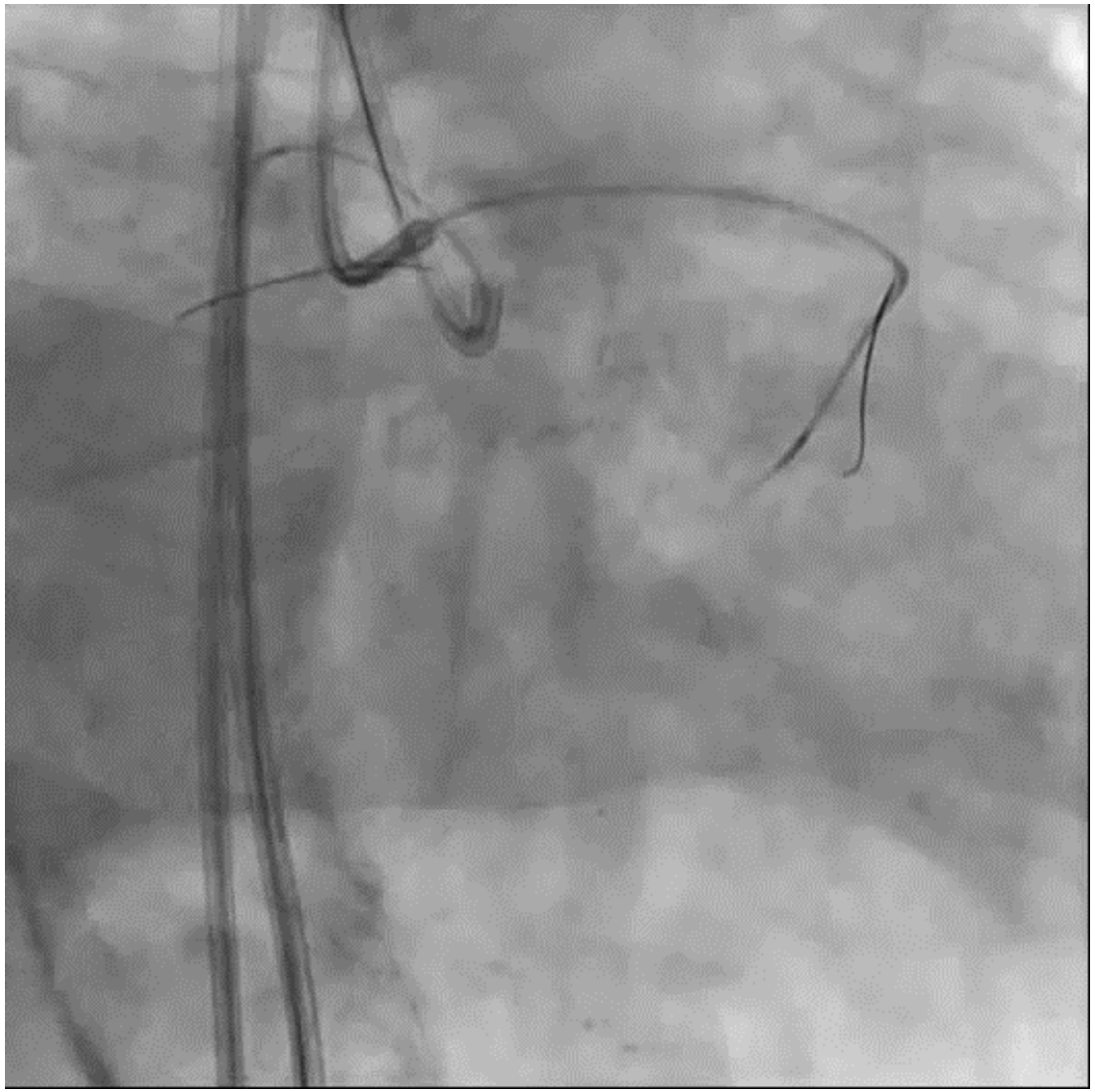
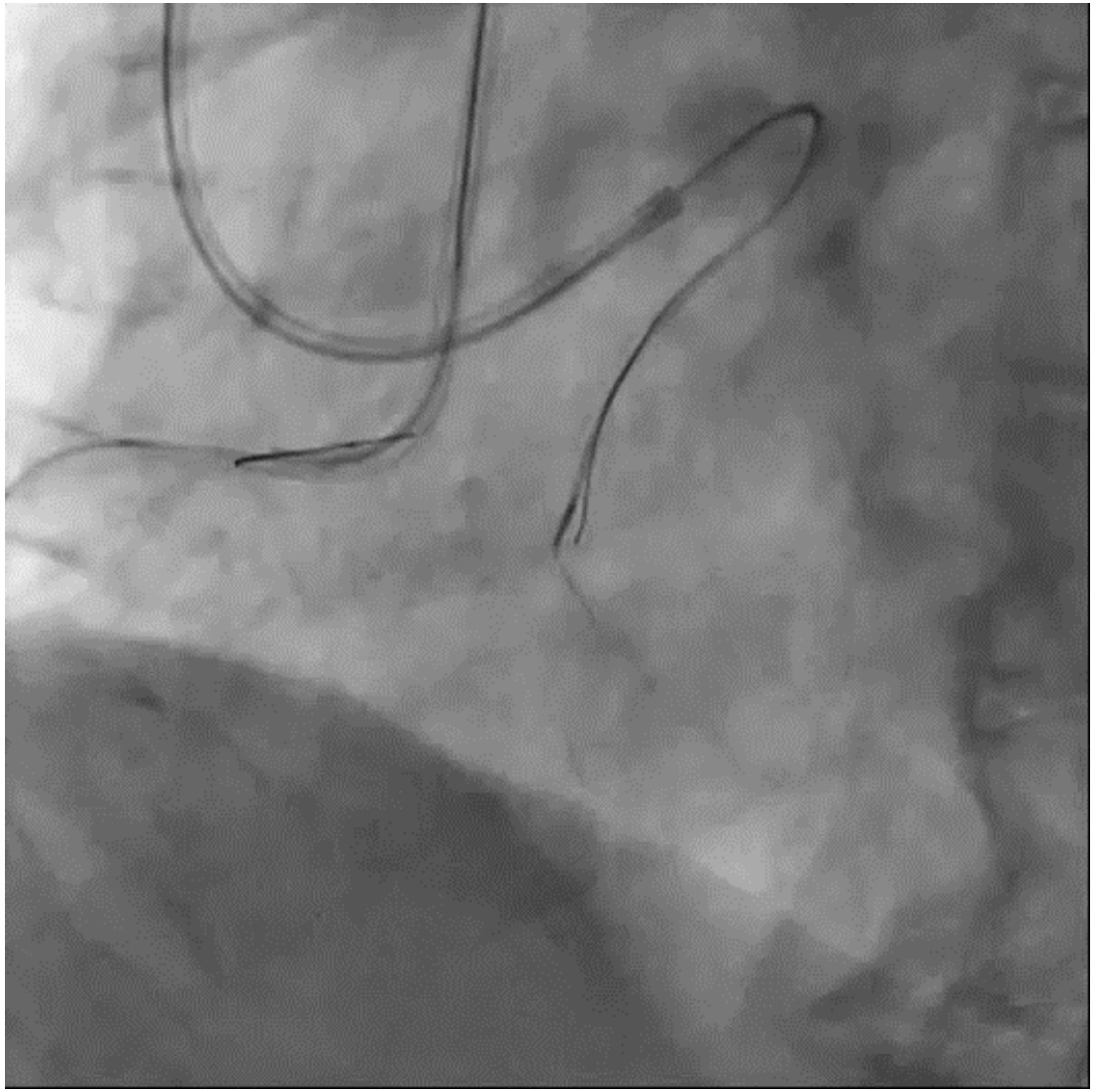


Tip injection to distal 1st septal branch



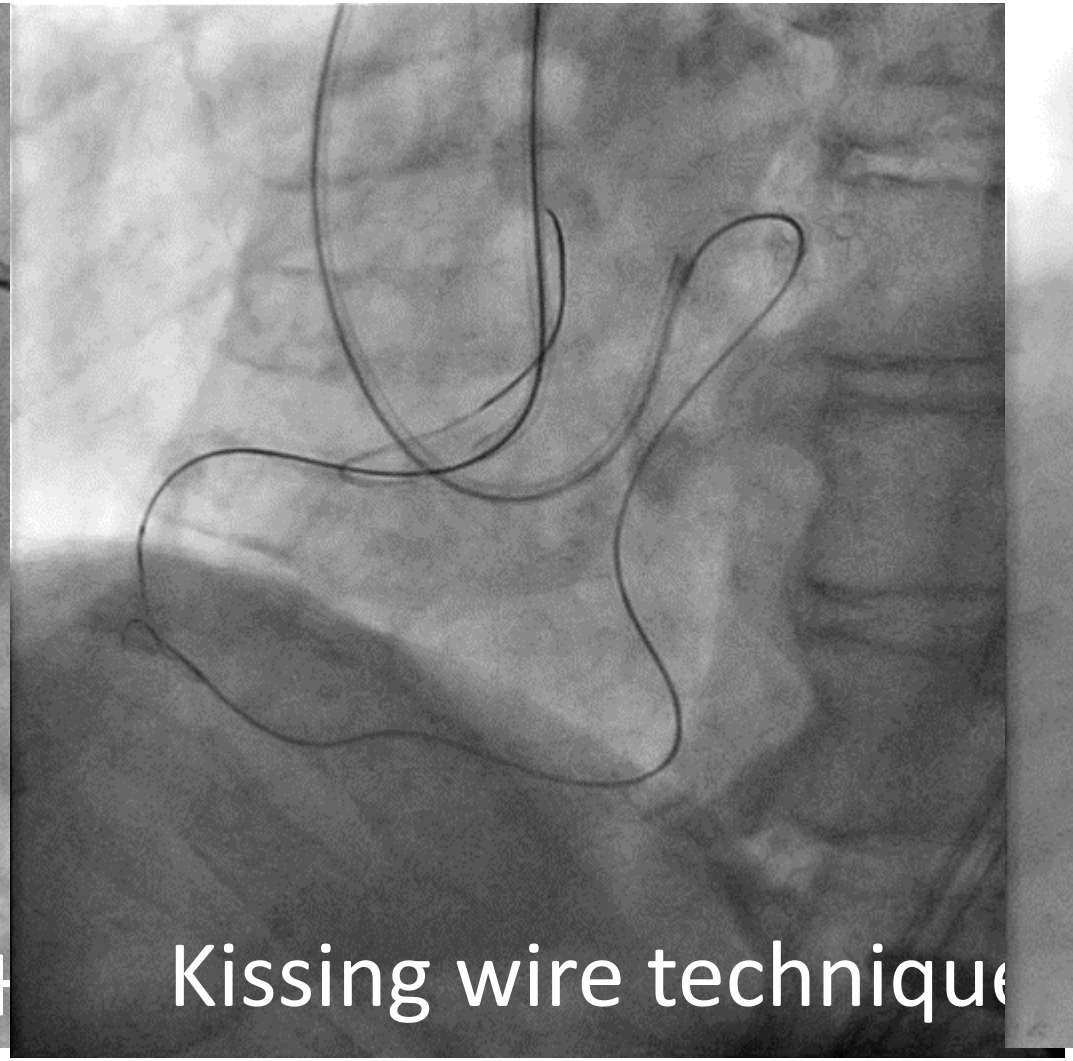
RAO CAU



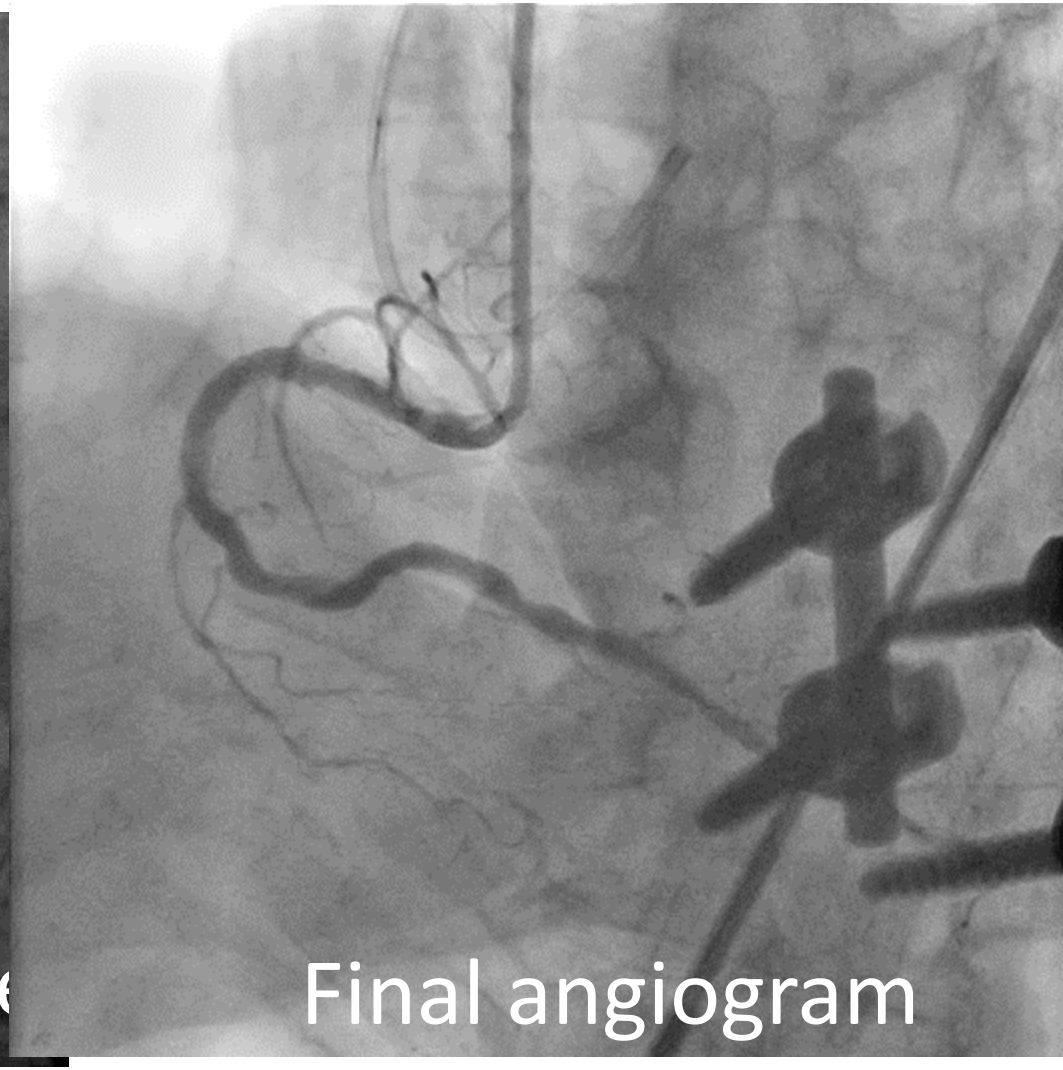
LAO CAU

subsequent procedure

SUOI

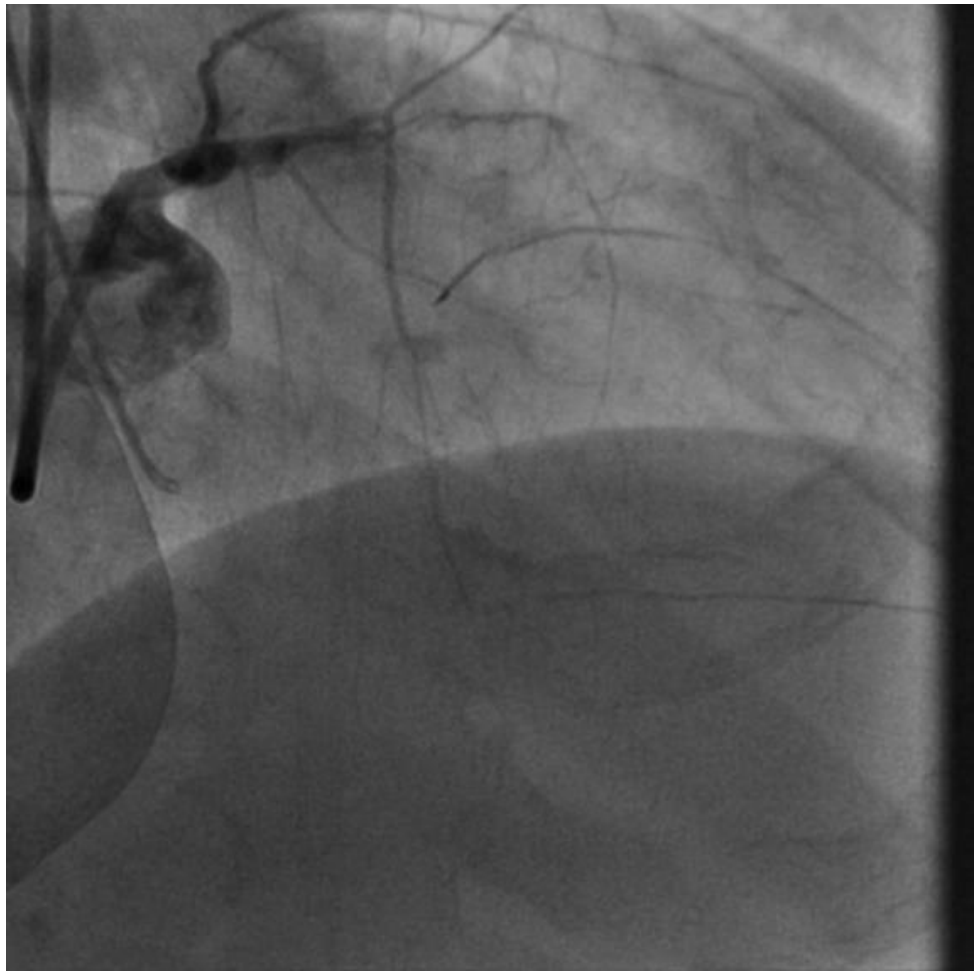


Kissing wire technique

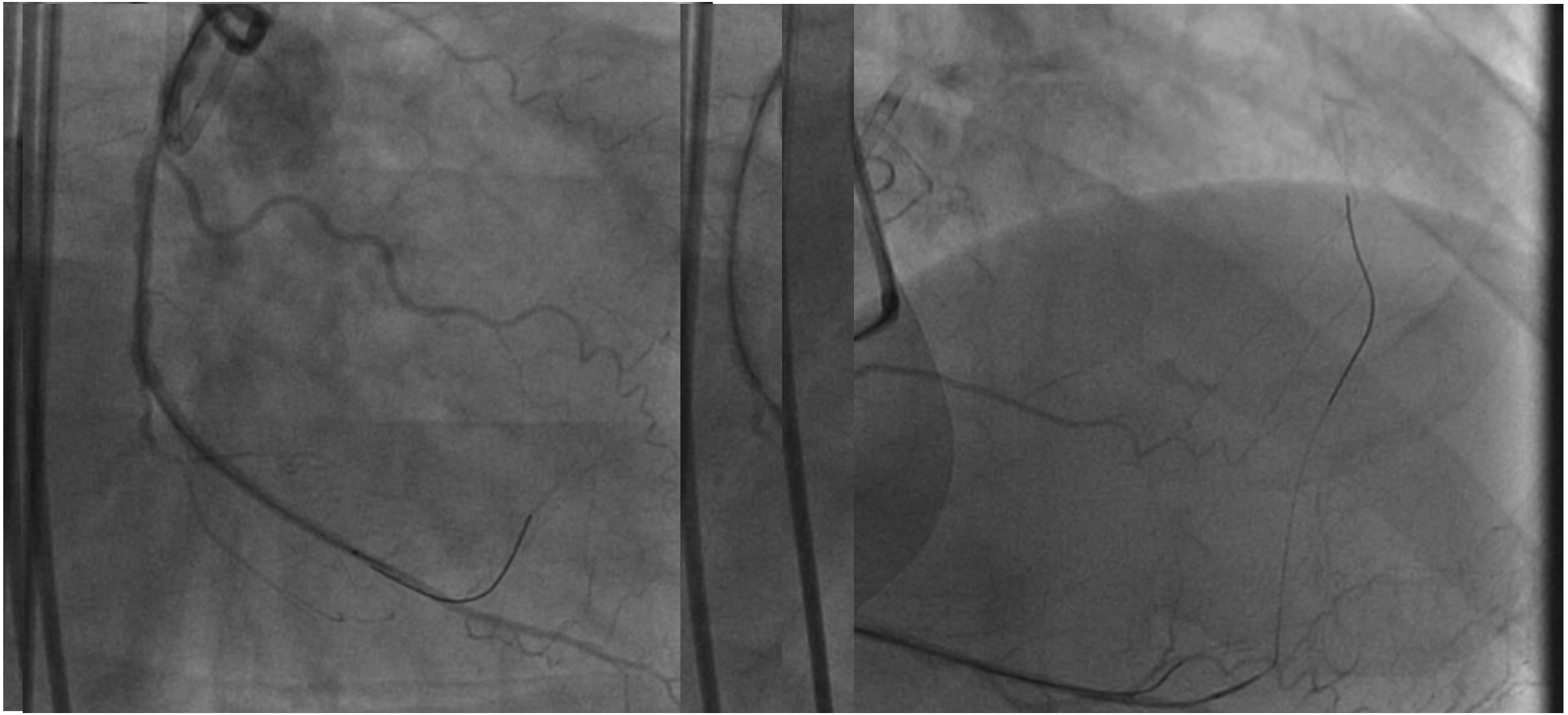


Final angiogram

Re-attempt LAD CTO in Thailand WS



Retrograde wiring procedure



Landmark wire technique

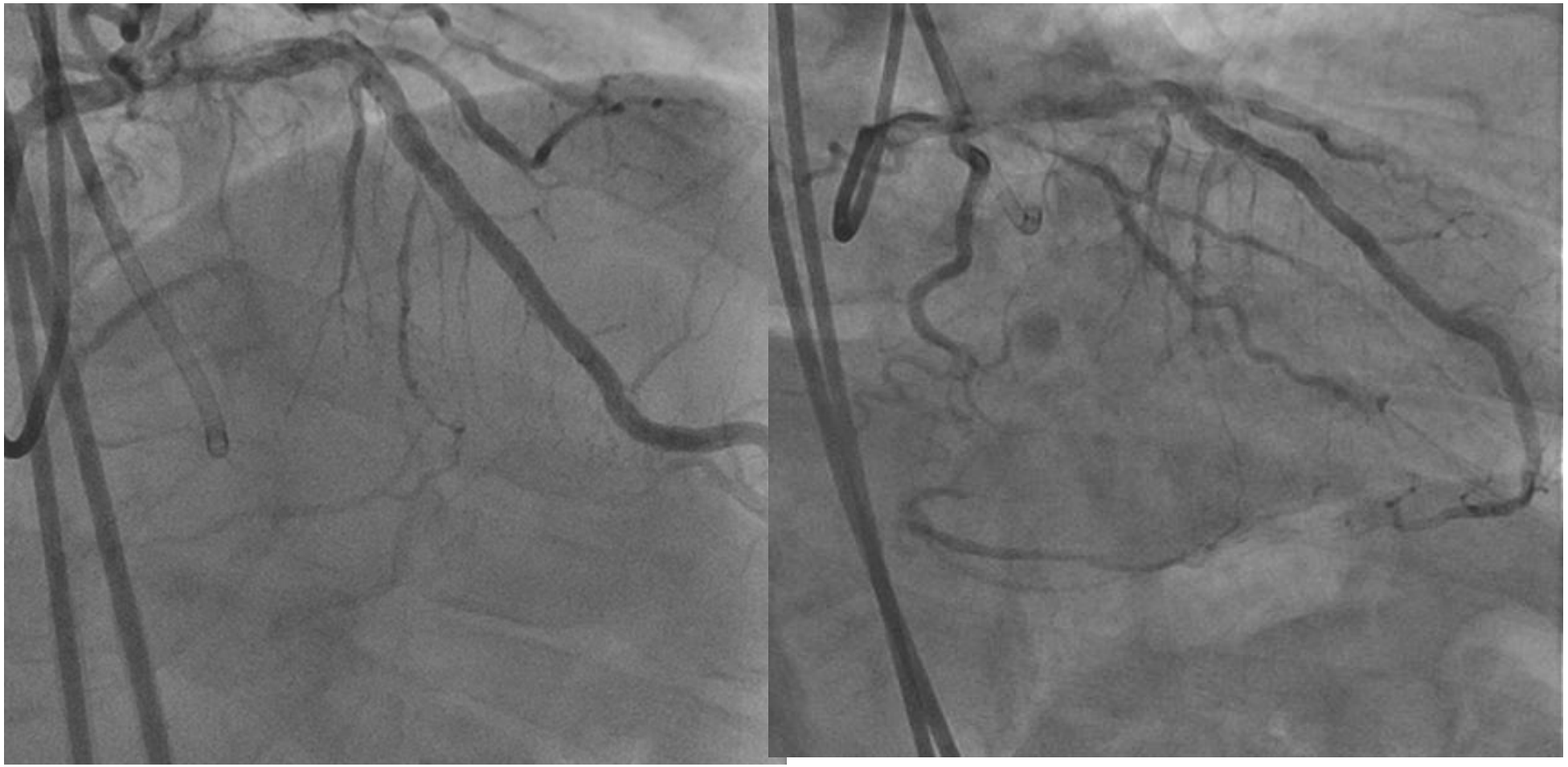
- Land mark wire technique is a novel technique to facilitate retrograde wiring to target septal connection channel with complex bifurcated anatomy.

- This technique is also useful to save procedure time.

Some special techniques for septal channel crossing

- Guide wire selection
- Landmark wire technique
- Rotational angiogram
- Double lumen catheter usage
- Reverse wire technique
- Balloon occlusion technique

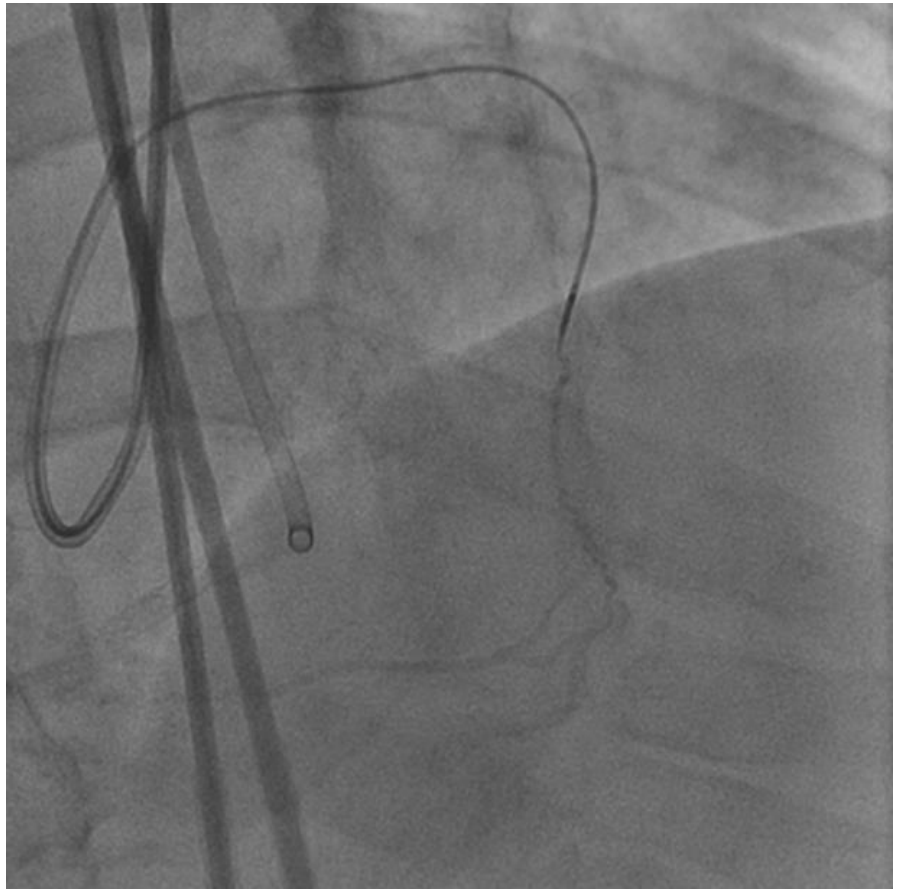
RCA CTO case in SLDC



RAO CRA

RAO CAU

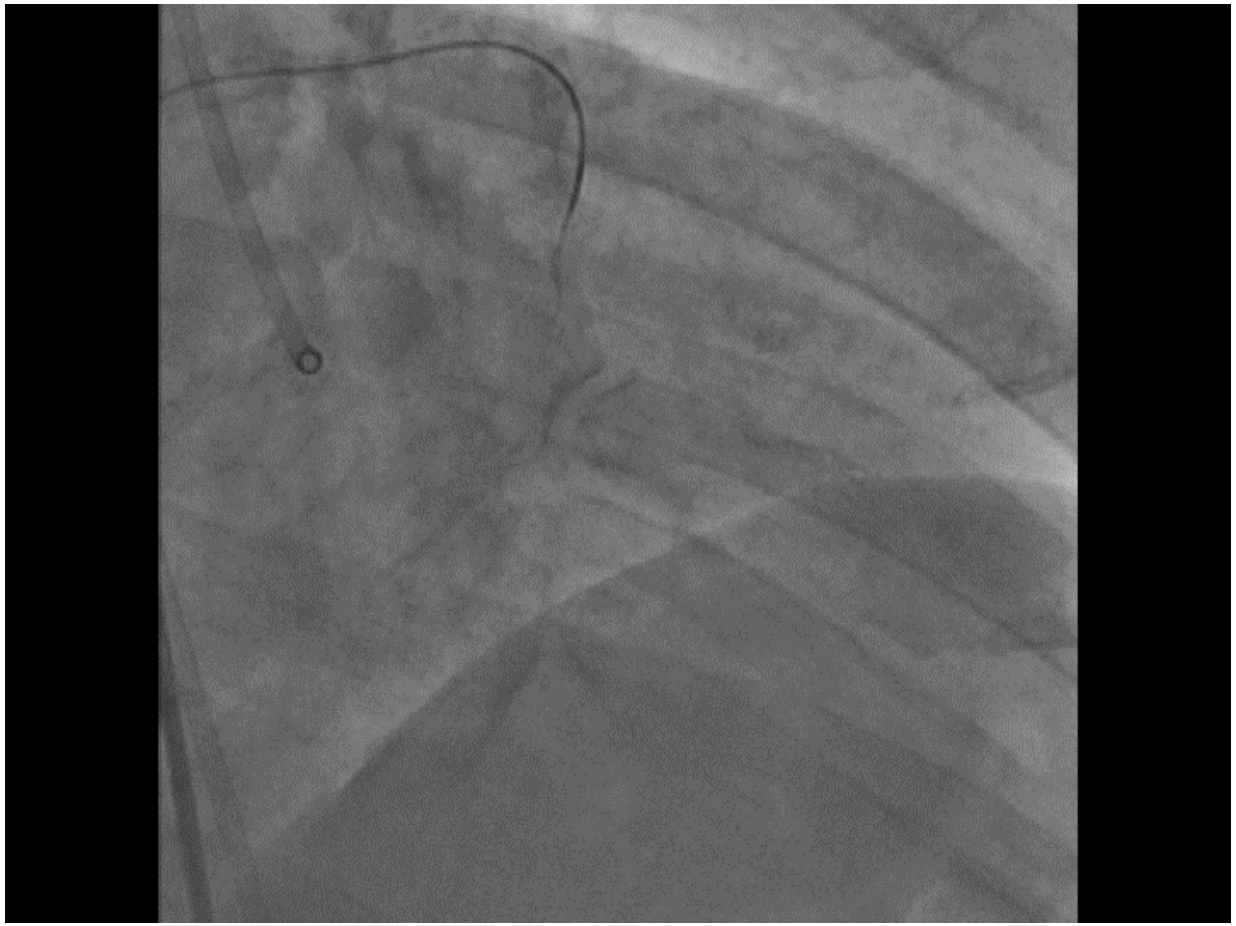
Tip injection from isolated septal branch



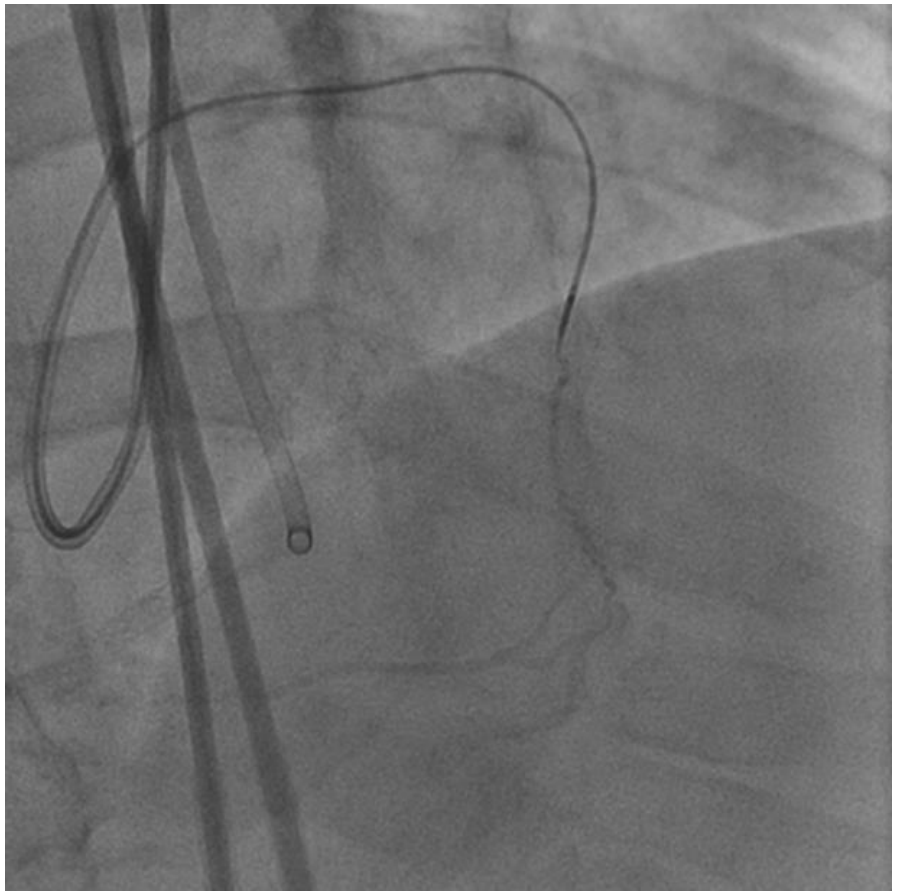
RAO CAU

SION→FielderFC →XT-R

Rotational angiogram(RAO CAU→Spider)



Tip injection from isolated septal branch

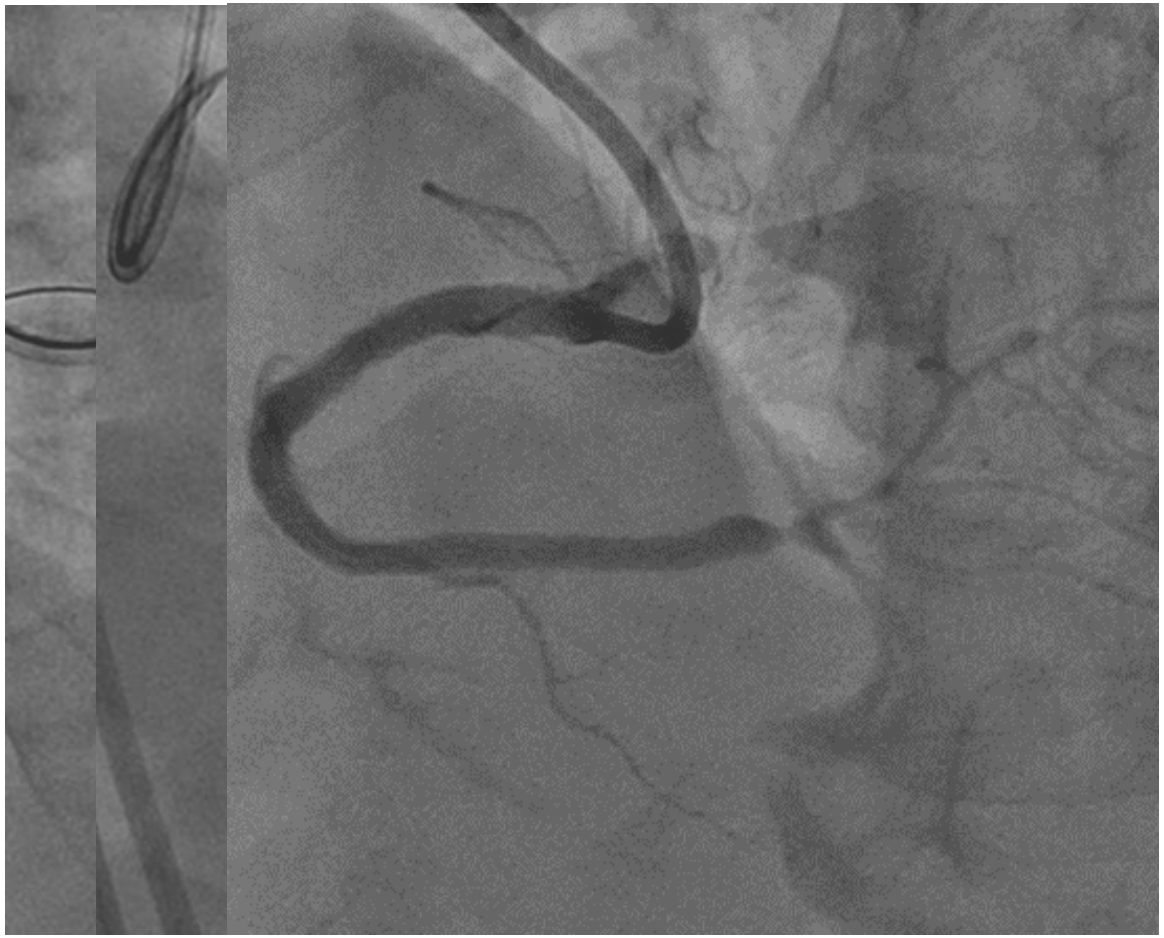


RAO CAU

LAO

Wiring to septal connection pathway from LAO view

LAO



- RAO CAU view is a standard view angle to negotiate septal channel.
- However, septal connection channels are often involved with tricky anatomy.
- Rotational angiogram or tip injection from LAO is useful technique

Thank you for your attention