

IPS/CTO LIVE 2012 ; @ Asan Medical Center, Seoul, Korea

***Successful revascularization of  
LCX-CTO via a underlying  
collateral channel***

The Department of Cardiology,  
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# Case . 78 y.o. male

**Target Lesion:** proximal LCX CTO (the 2<sup>nd</sup> attempt)

**Diagnosis:** AP , post CABG

**Past History:** CABG(LITA-LAD, SVG-D1&OM)(1998) , P-C.I.,  
P-PMI, P-VP shunt

**Prior intervention:** PCI to proximal to mid RCA ( Cypher × 2)(2005)

PCI to distal RCA ( Cypher ) (2007) @ other hospital

PCI to proximal LCX CTO (the 1<sup>st</sup> attempt) ;

⇒unsuccess due to GW uncross by antegrade approach

**Coronary Risk Factor:** DM,HTN,CKD,

**Final CAG findings :**

RCA ; mid RCA :in-stent restenosis(+) , AV node branch CTO,

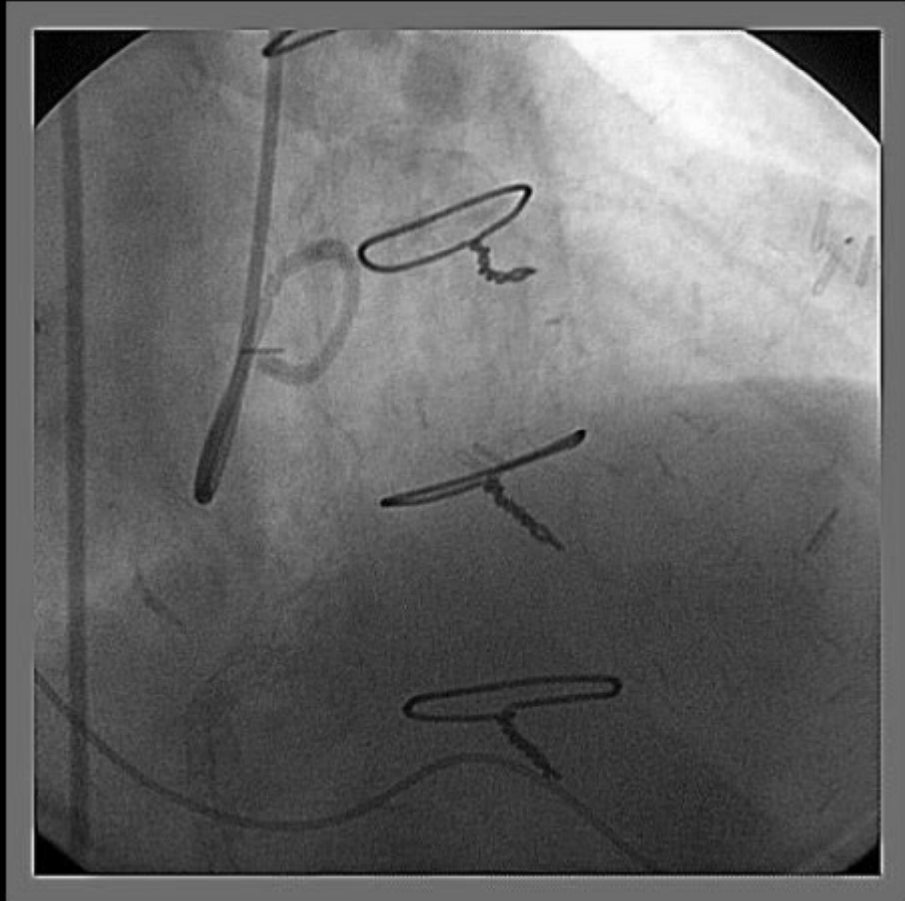
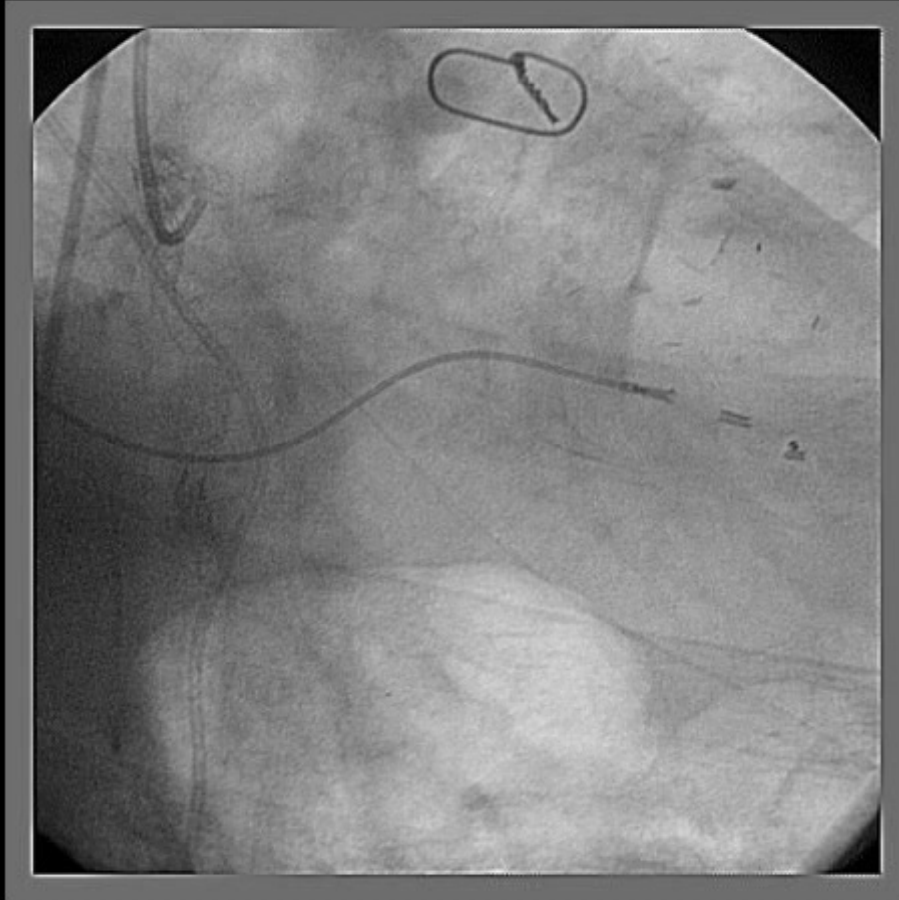
LMT ; moderate stenosis,

proximal LAD ; severe stenosis , proximal LCX ; CTO,

LITA - LAD patent,

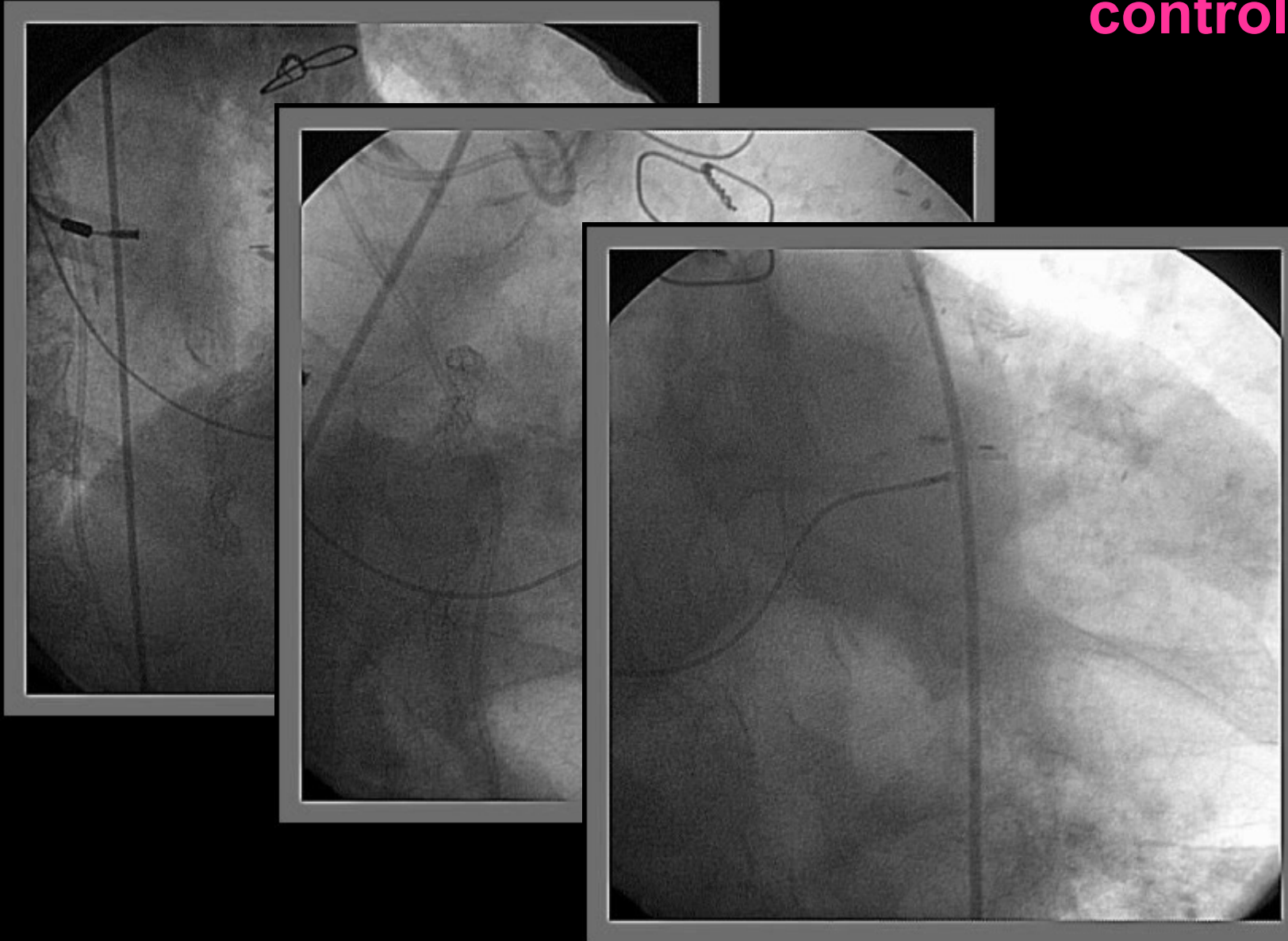
SVG - D1 & OM patent (OM branch was occluded @ proximal site)

## control CAG

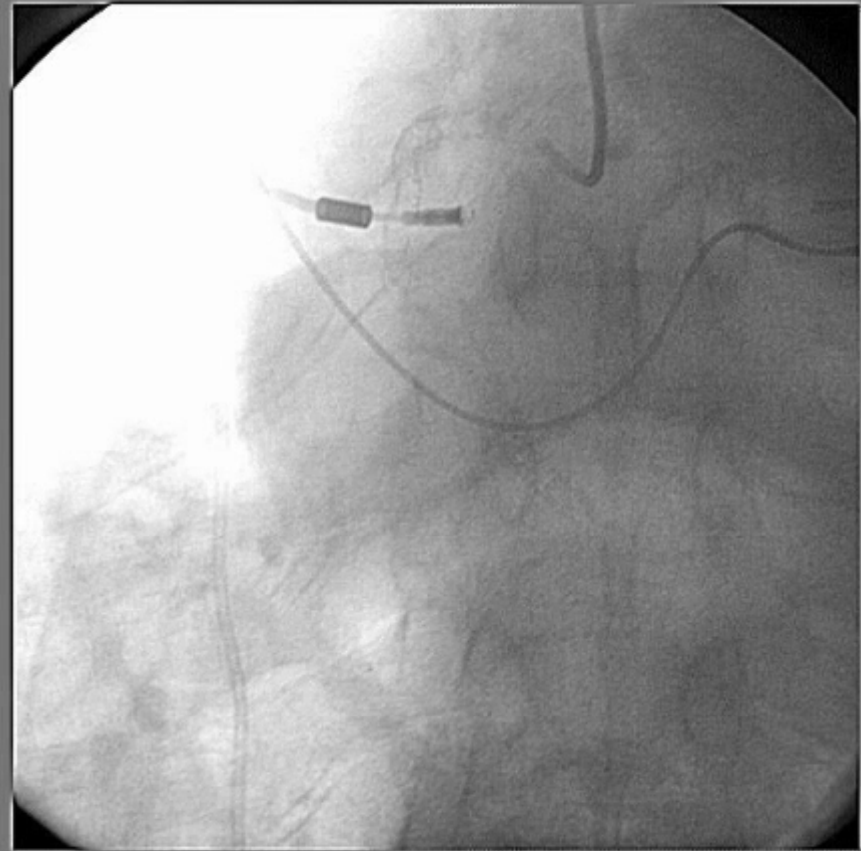
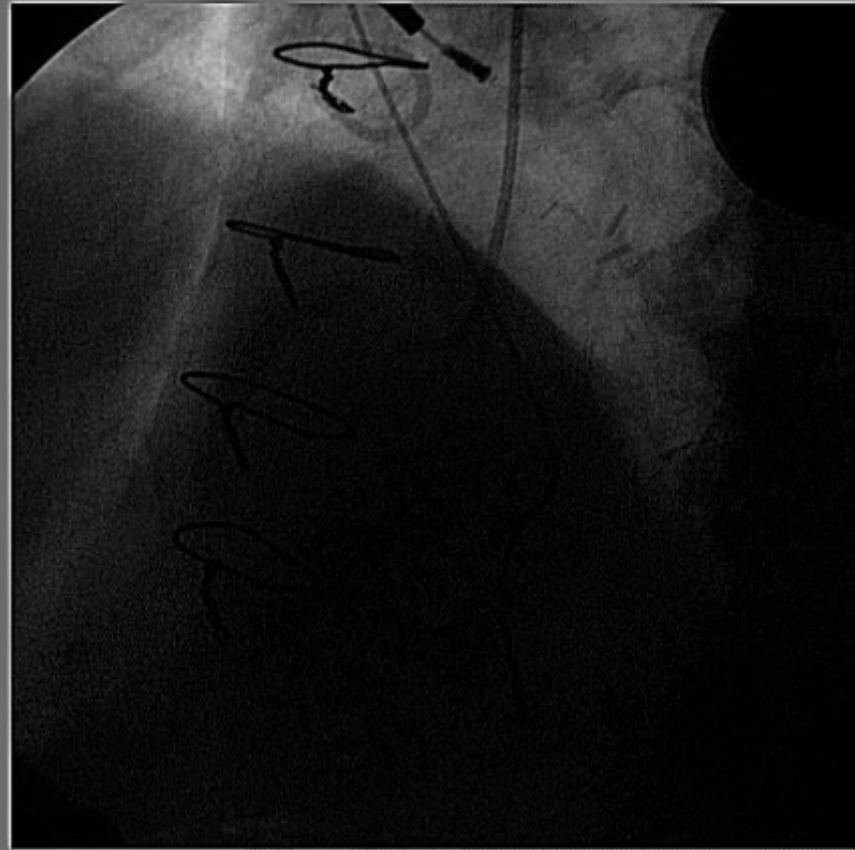




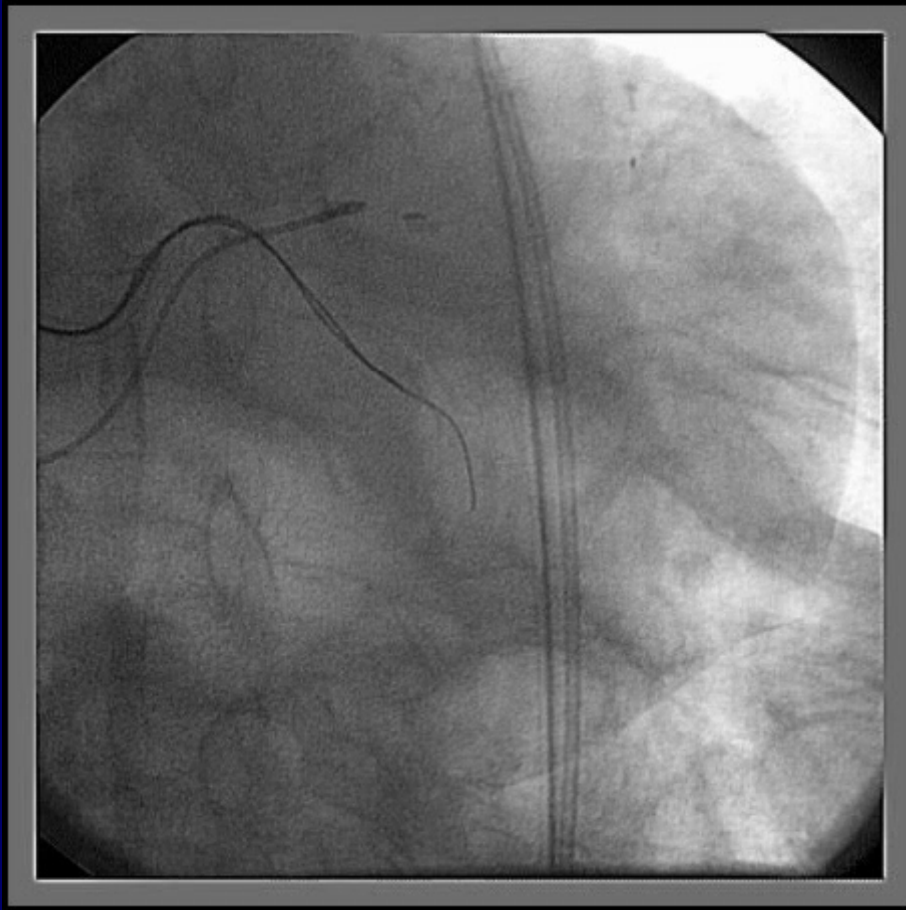
**control CAG**



**control CAG**

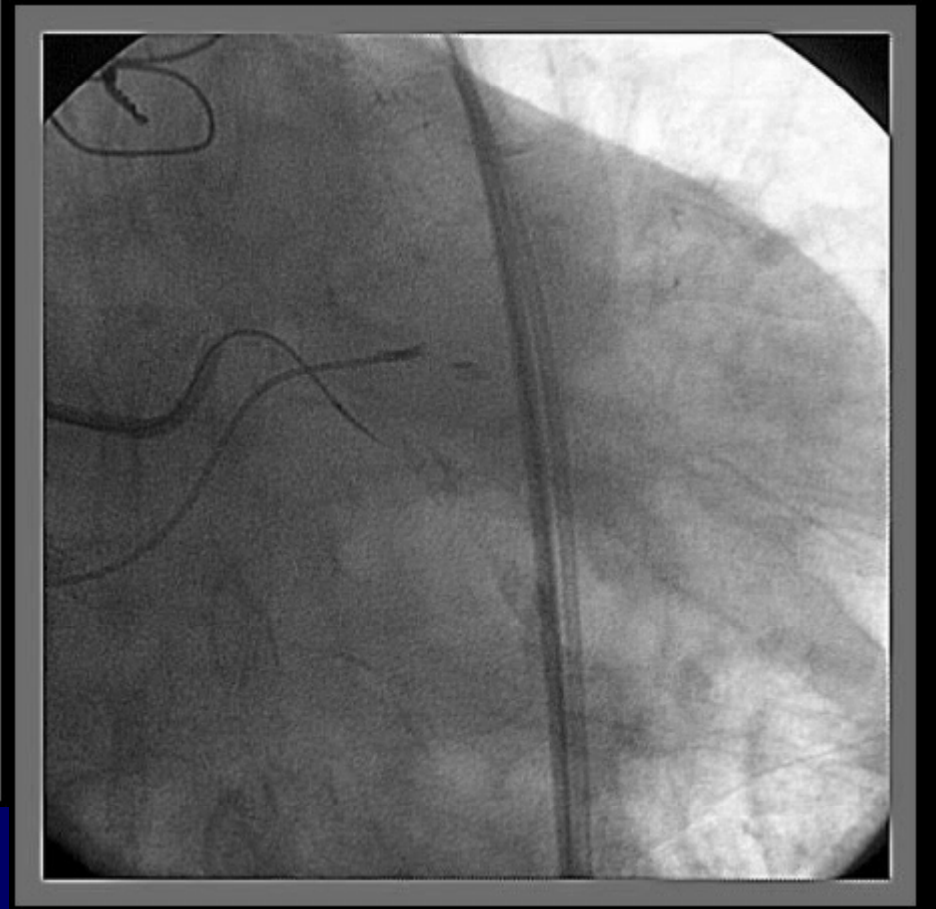


# PCI to the proximal LCX-CTO (the 1<sup>st</sup> attempt)



**Parallel wire technique**

**Antegrade approach**

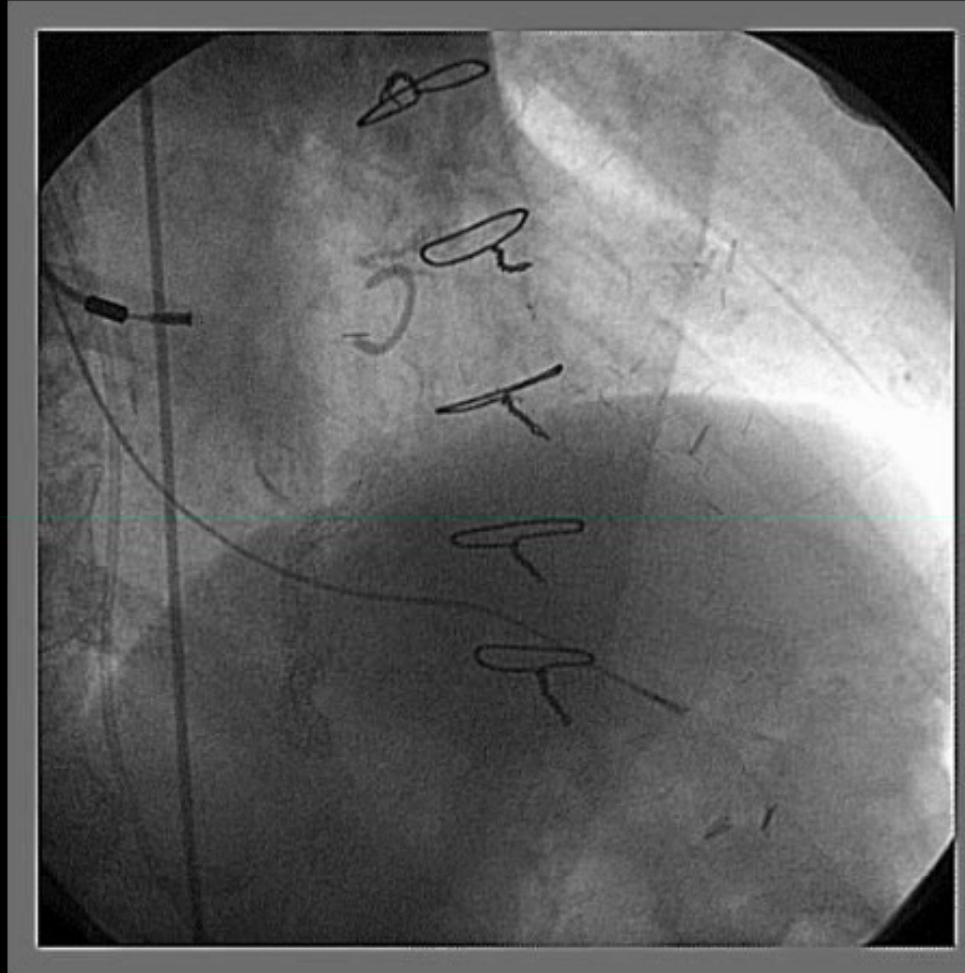


**Formation of huge dissection**

# To the end that leads to succeed in revascularization on the 2<sup>nd</sup> attempt...

- **IVUS guided PCI by antegrade approach might better perform on the 2<sup>nd</sup> attempt.**
- **Bilateral approach, if possible.**  
**That is, if there exist a applicable channel for retrograde approach, ...**

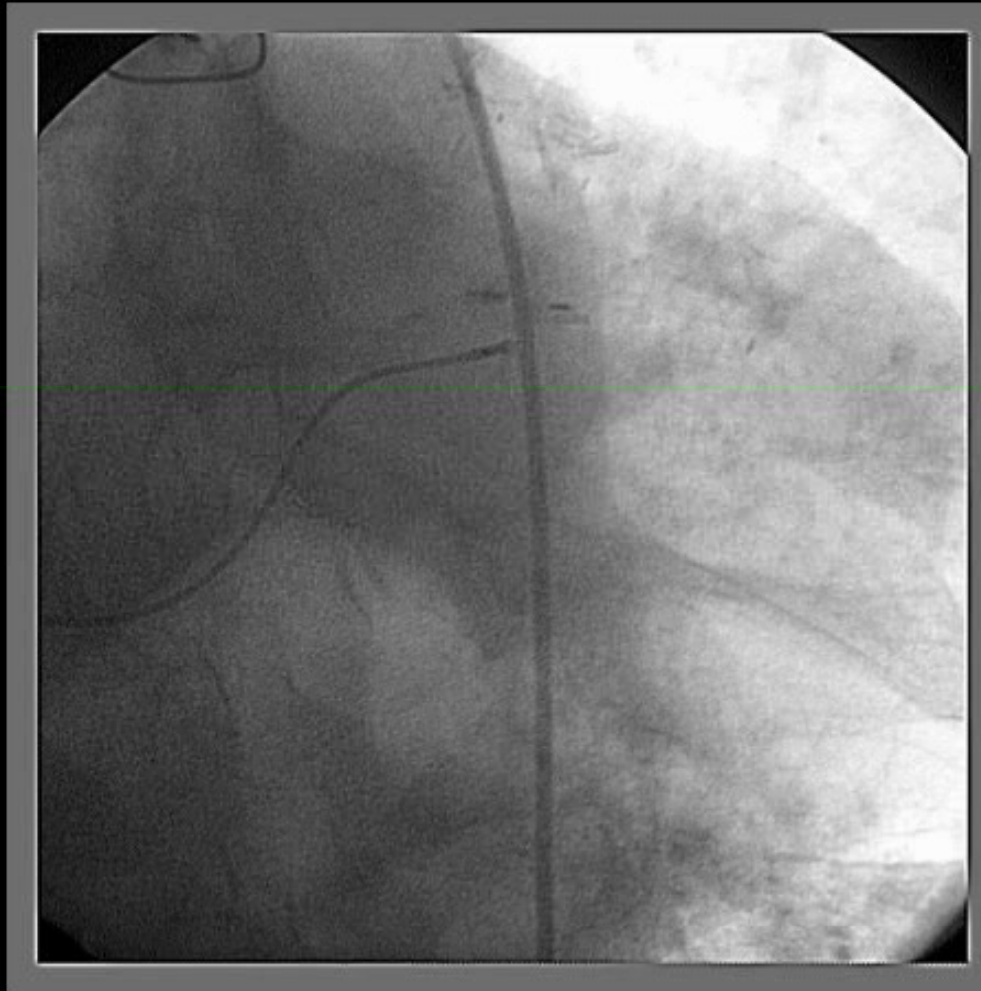
# Review the collateral channel from CAG(1)



This angiography doesn't seem to be epicardial channel from LAD distal to LCX via LV apex...

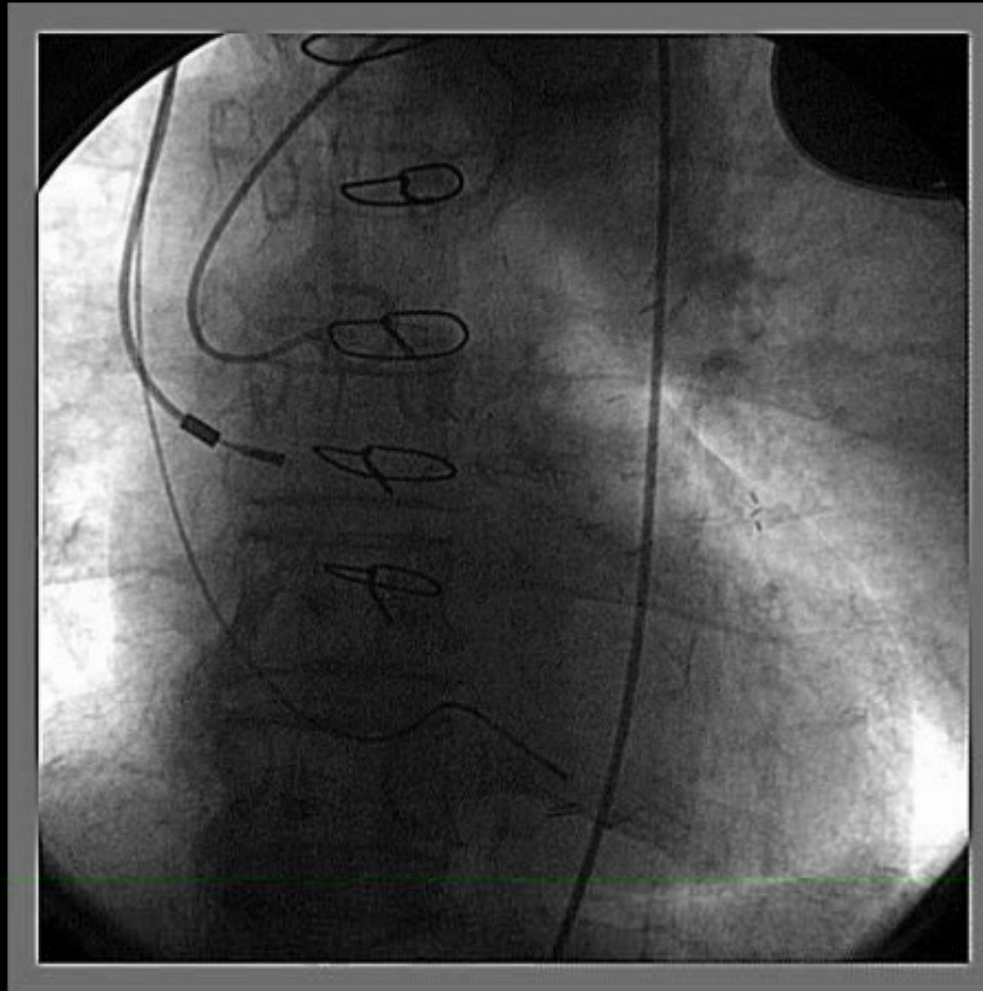


# Review the collateral channel from CAG(2)



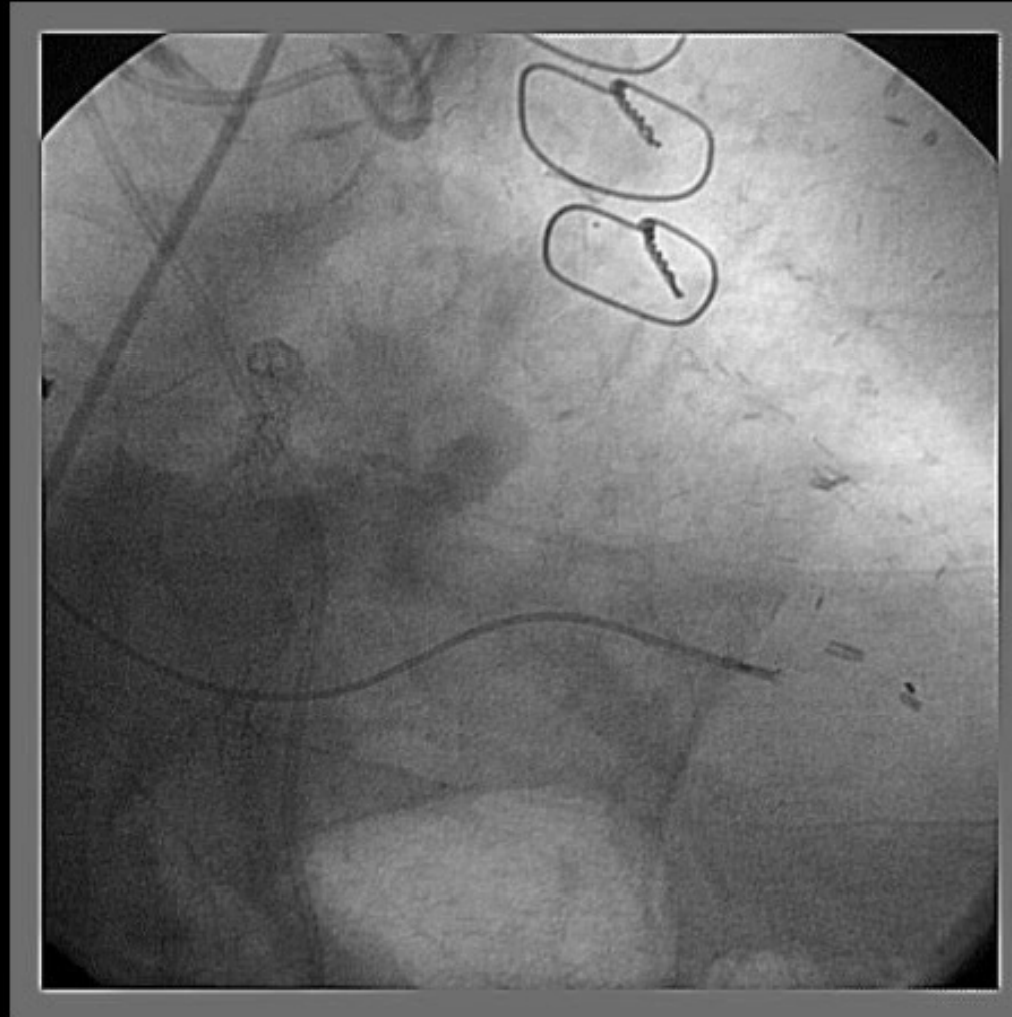
**Epicardial channel from D1 and OM via SVG to LCX were found.  
However, these appeared inapplicable to retrograde approach  
because of severe tortuosity.**

# Review the collateral channel from CAG(3)



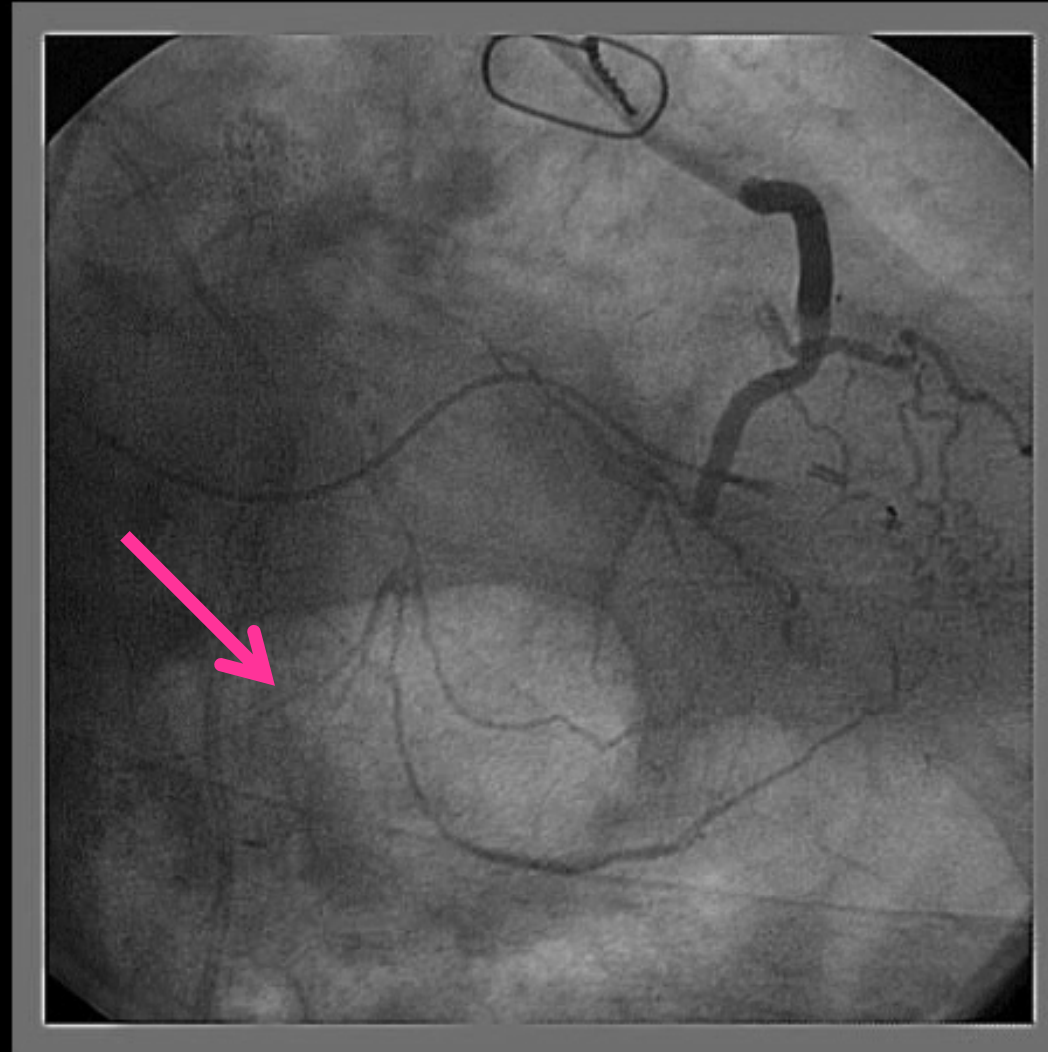
**A Competitive flow was detected at the atrial circumflex(AC) branch via retrograde flow of LCX from SVG to OM branch.**

# Review the collateral channel from CAG(4)



The flow of AC branch was competed with somewhere

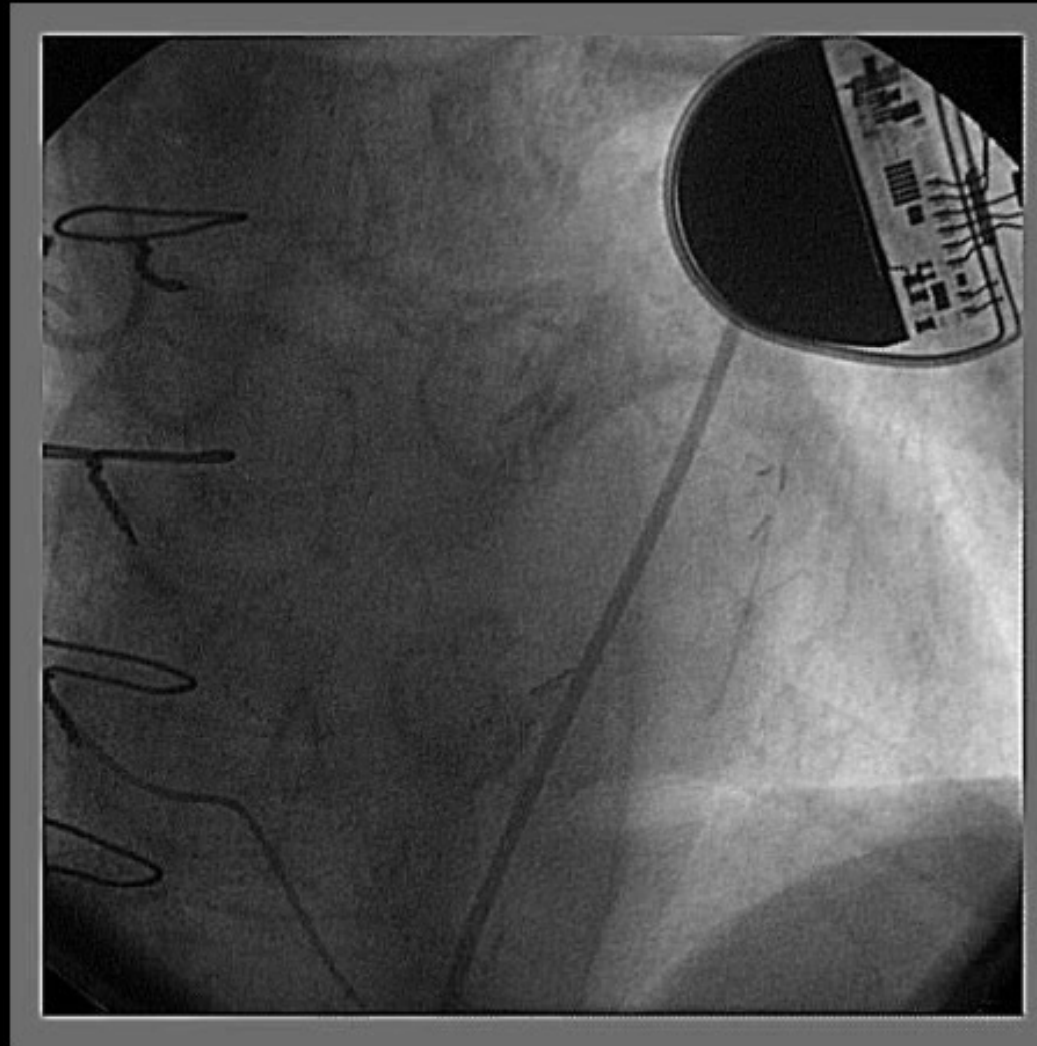
# Review the collateral channel from CAG(4)



The flow of AC branch was competed with somewhere

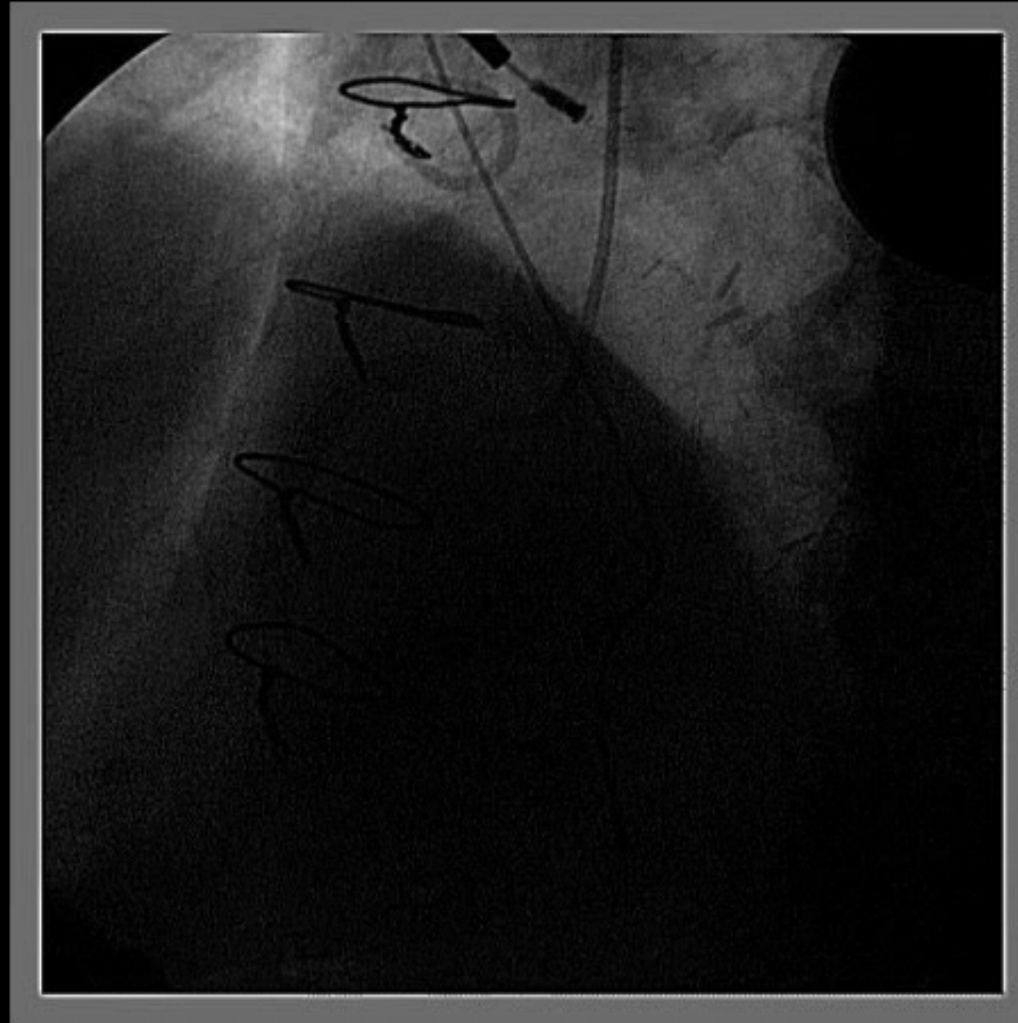


# Review the collateral channel from CAG(5)



The competitive flow made its way toward distal RCA , but,  
that flow had not been up to RCA...

# Review the collateral channel from CAG(6)



The imperceptible collateral was found from sinus node artery toward LCX, which might be barely continuity to distal LCX.

***As a end result ,  
these all collaterals appeared  
inapplicable to retrograde approach  
in this situation...***

***However...***

***it was expected that the competitive flow might reflect underlying connection as atrial channel via AV groove.***

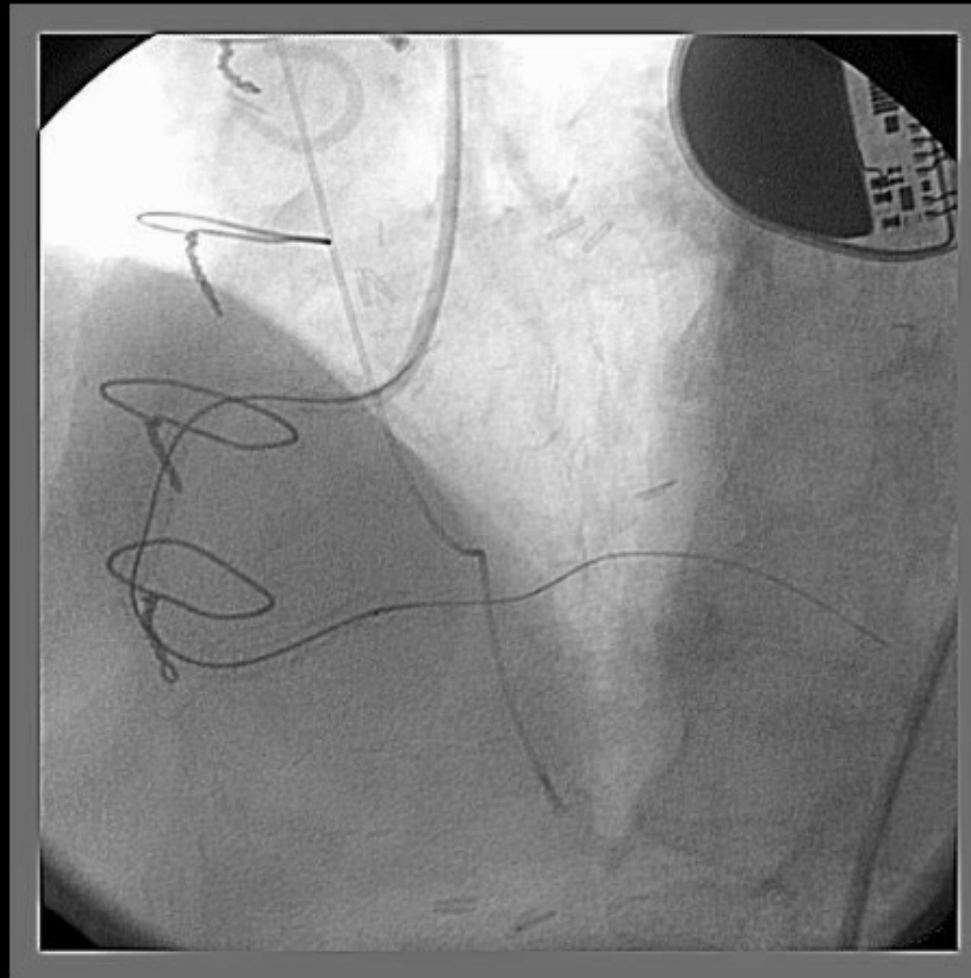


***preceding revascularization to the  
CTO-PCI of contralateral artery  
( i.e. the distal RCA-CTO of AV  
node branch) might change this  
situation ...***

# **PCI to RCA**

**(in-stent restenosis & #4AV-CTO)**

# PCI to RCA (in-stent restenosis & #4AV-CTO)

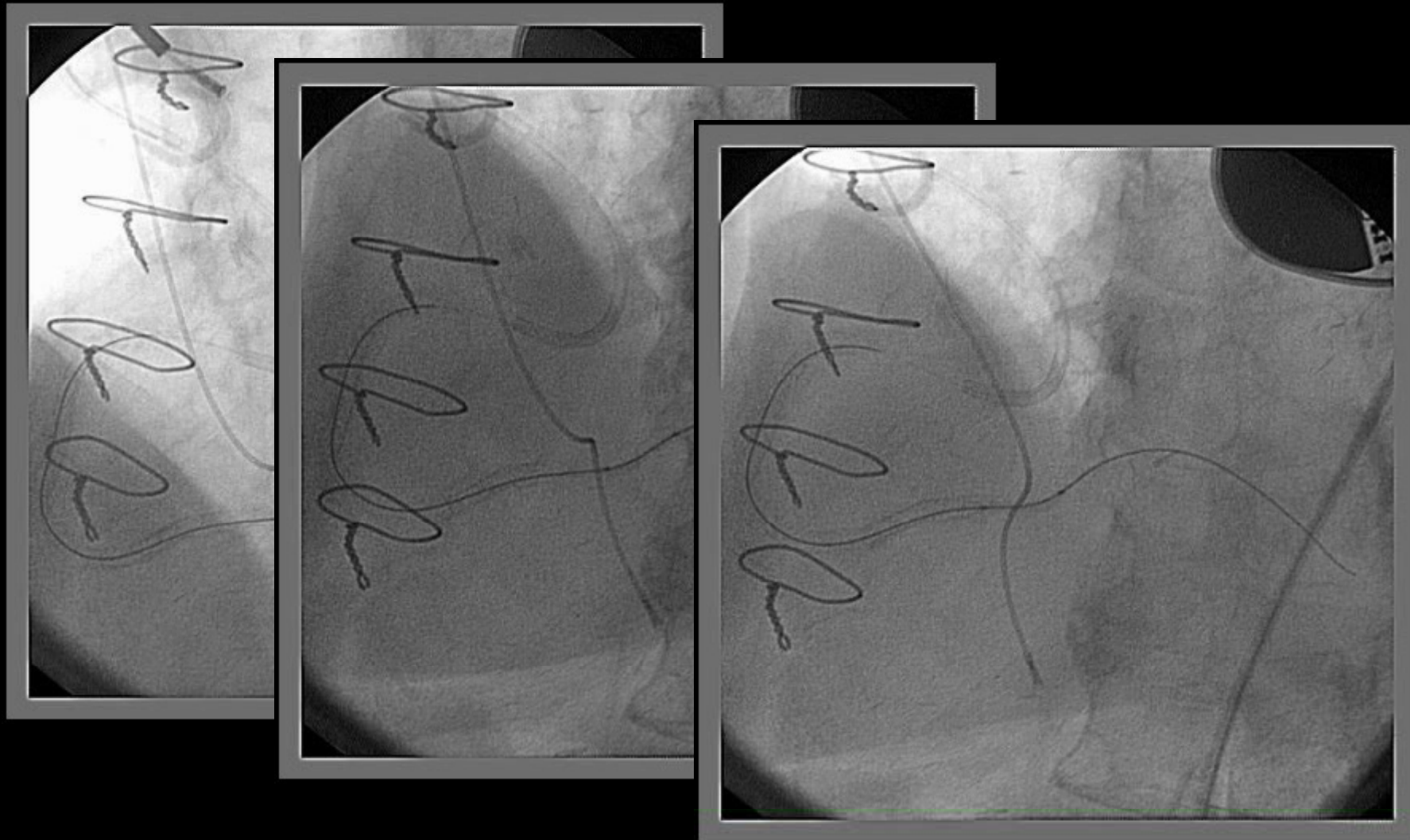


**Antegrade wire cross**

**Corsair + Fielder XT**

# PCI to RCA (in-stent restenosis & #4AV-CTO)

POBA(1)

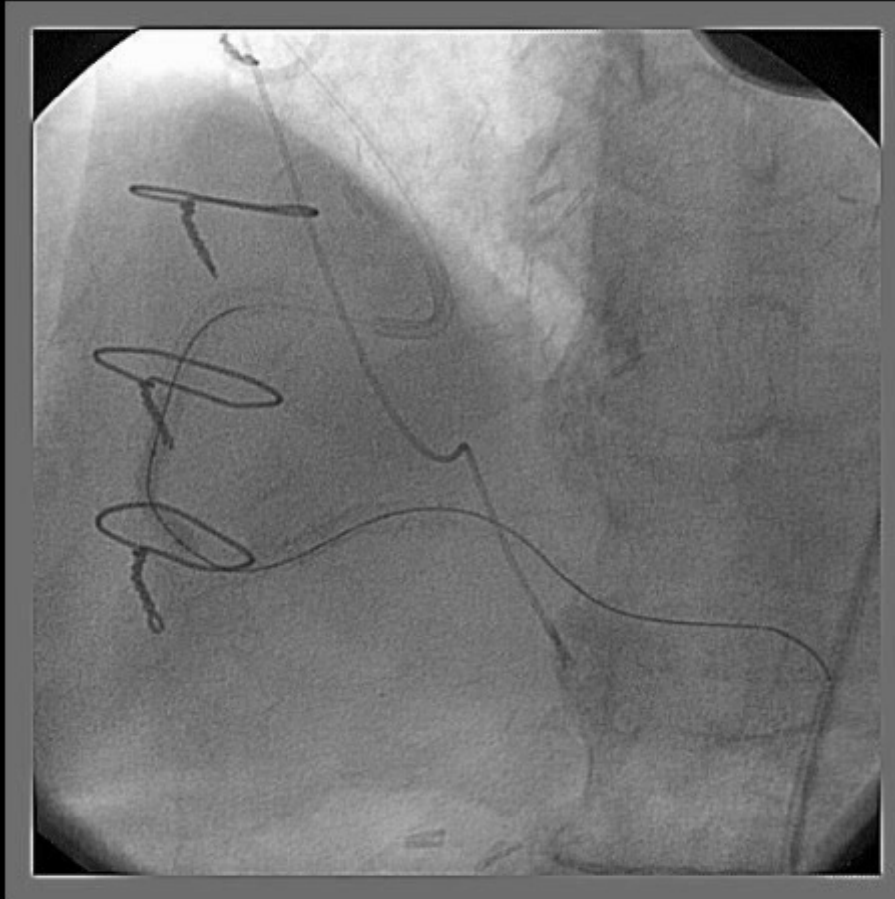


2.0/15mm Tazuna



# PCI to RCA (in-stent restenosis & #4AV-CTO)

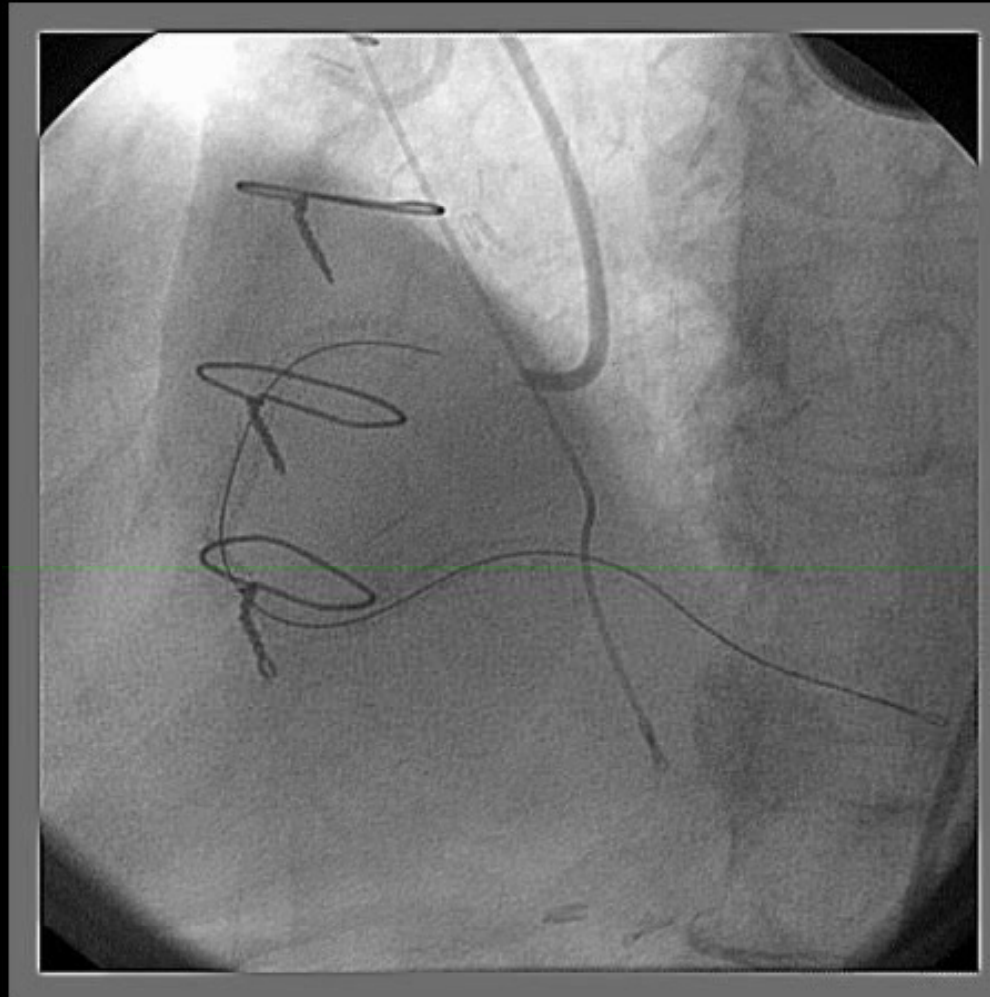
POBA(2)



3.5/15mm NC Voyager

# PCI to RCA (in-stent restenosis & #4AV-CTO)

## Final



**The Collateral via AV groove**

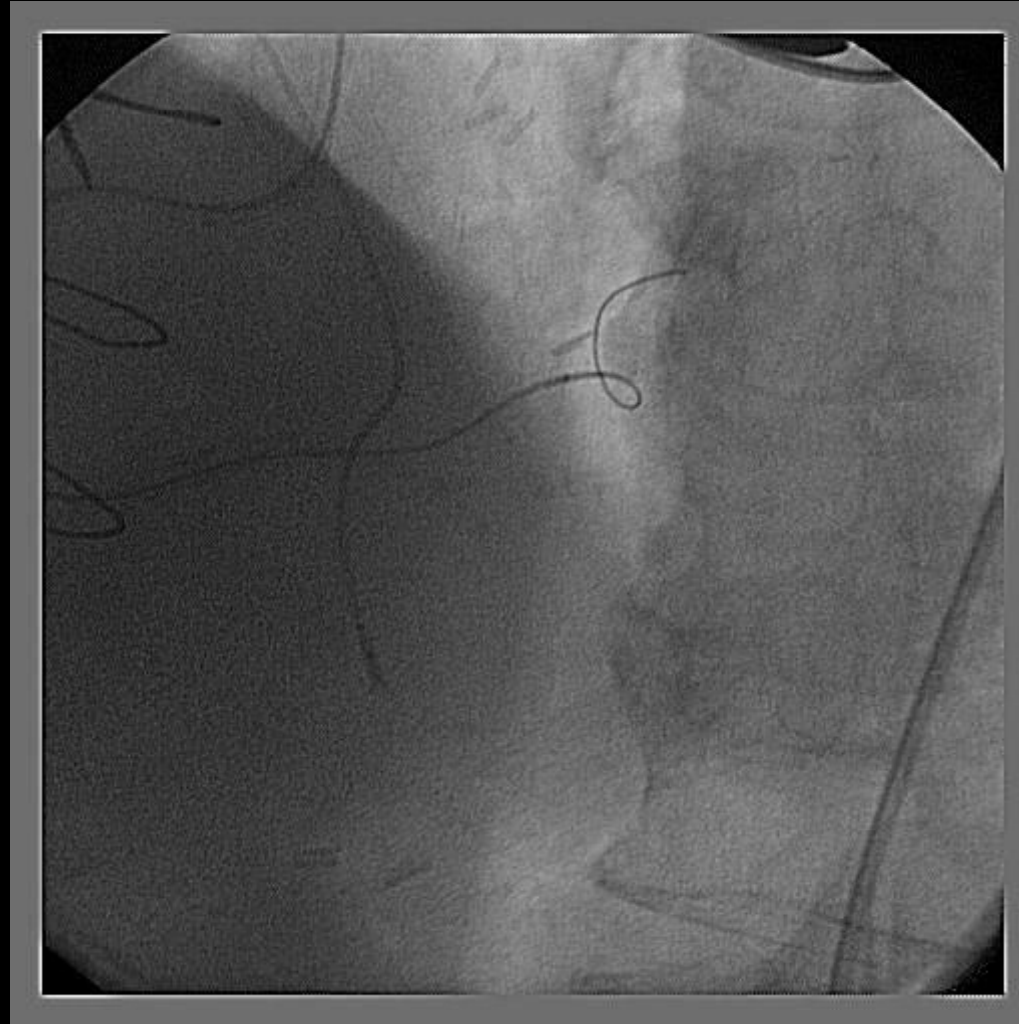
(from RCA AV branch to LCX AC branch) **came out clearly !!**

# PCI to the proximal LCX-CTO (the 2<sup>nd</sup> Attempt)

# PCI to the proximal LCX-CTO (the 2<sup>nd</sup> Attempt)

retrograde approach

Corsair + Sion blue

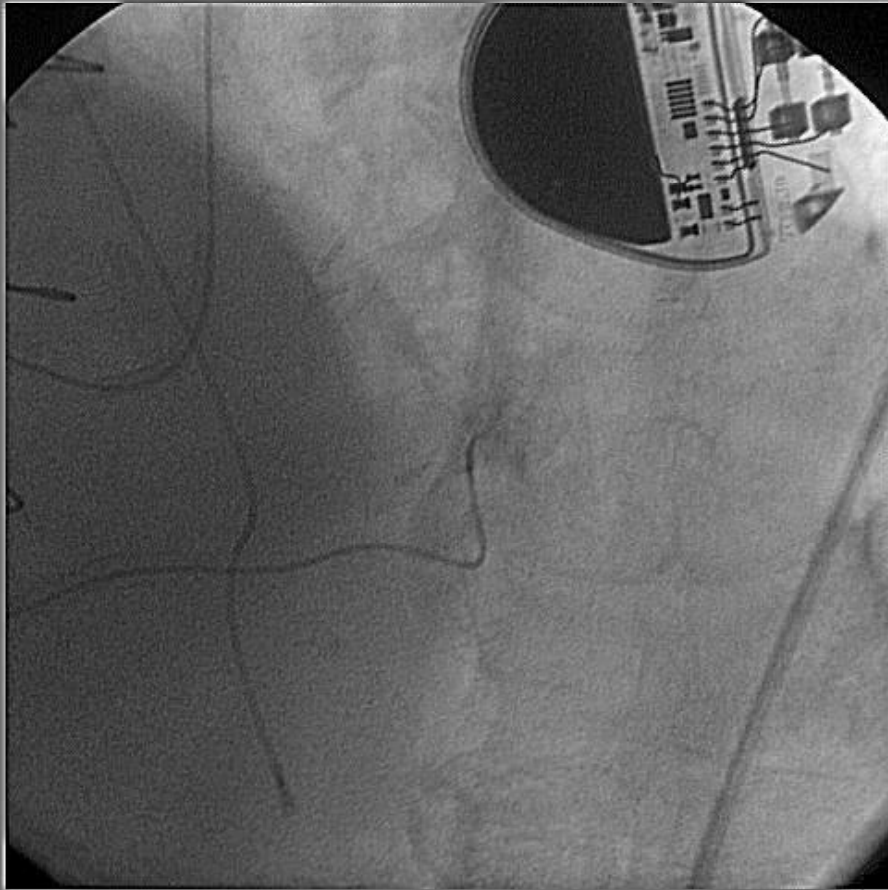


the collateral channel via AV groove(LCX AC to RCA AC)

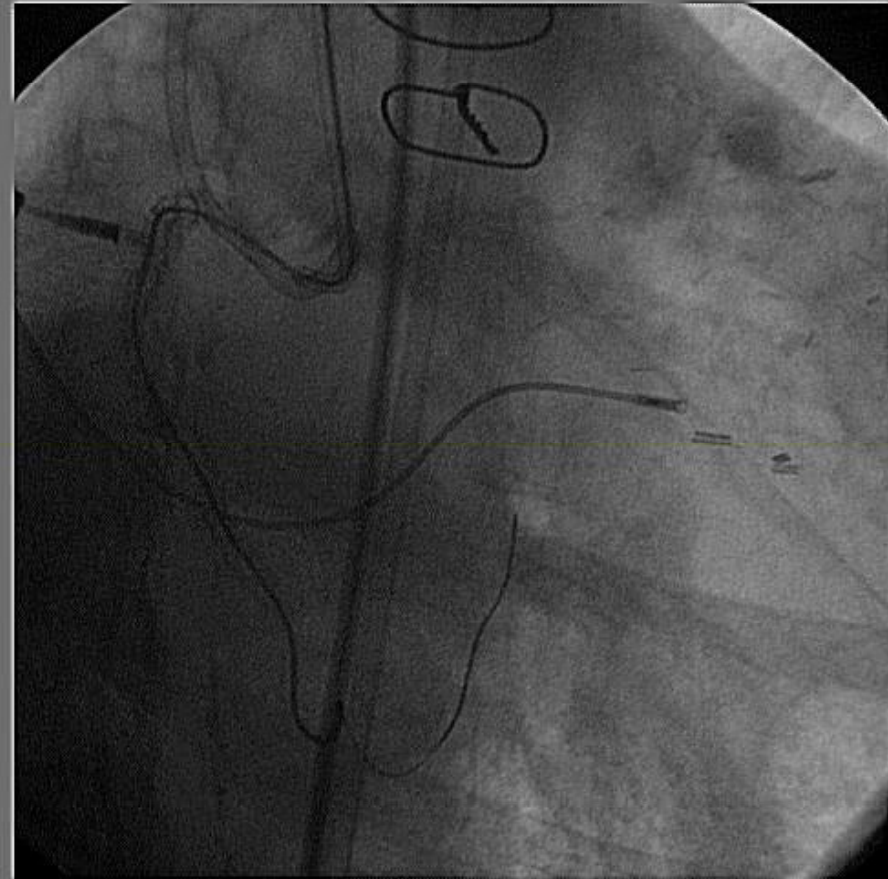


# PCI to the proximal LCX-CTO (the 2<sup>nd</sup> Attempt)

retrograde approach



tip injection

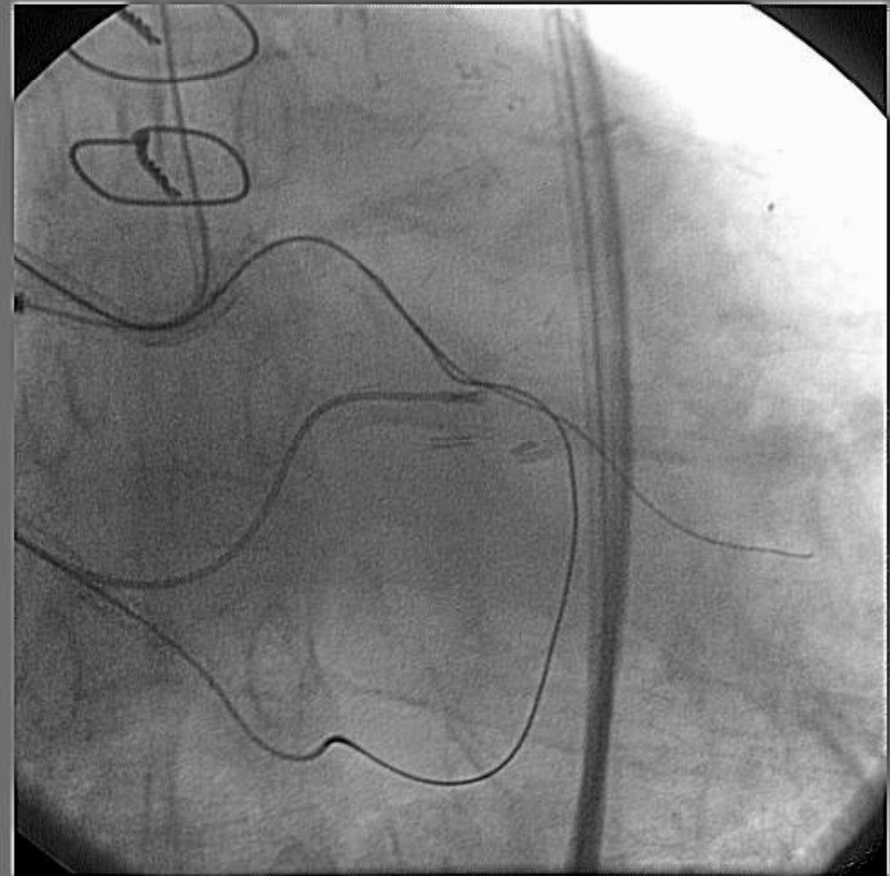
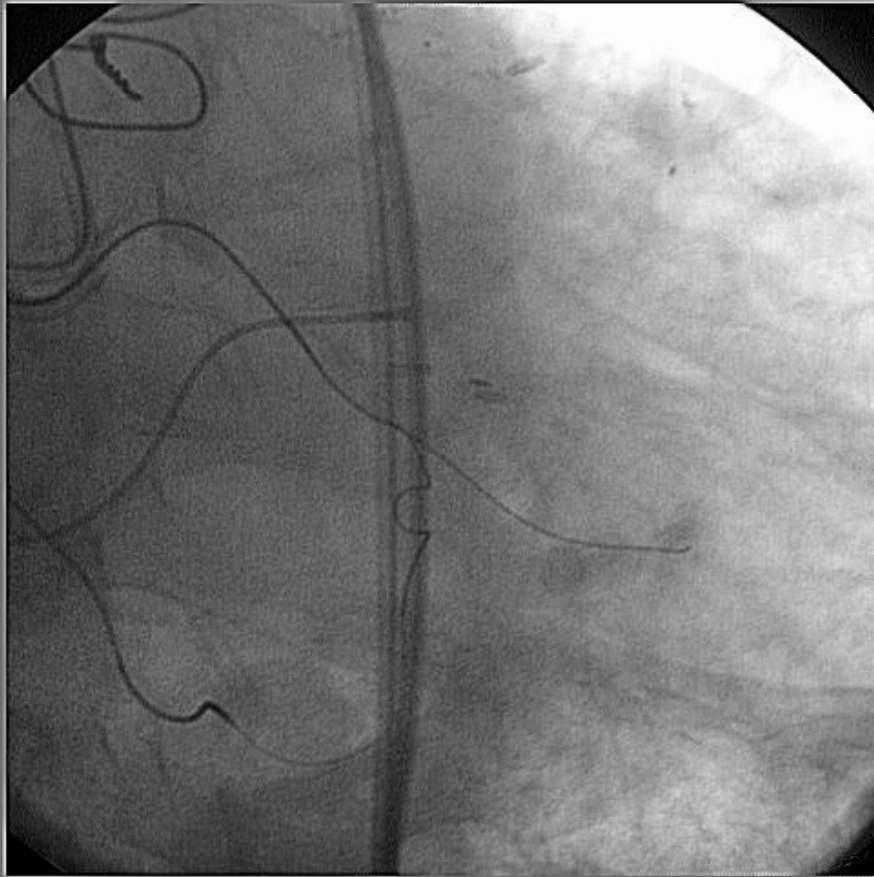


Corsair + Sion blue

# PCI to the proximal LCX-CTO (the 2<sup>nd</sup> Attempt)

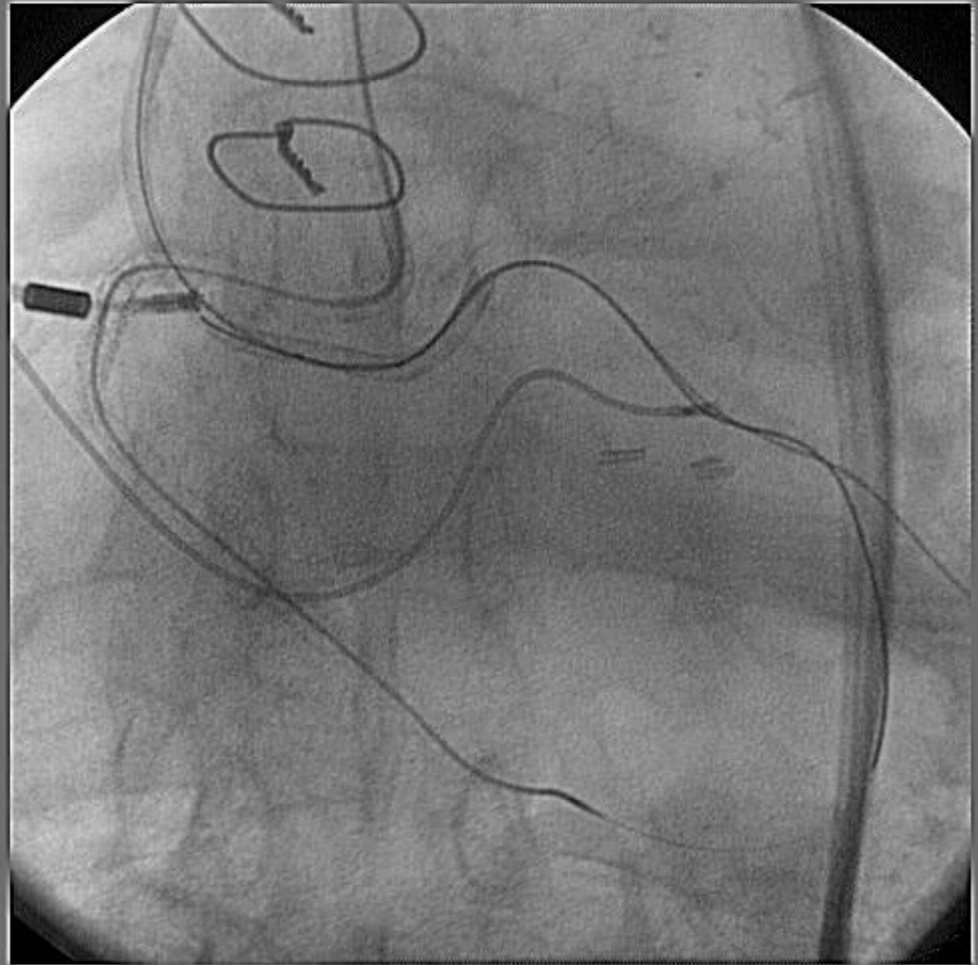
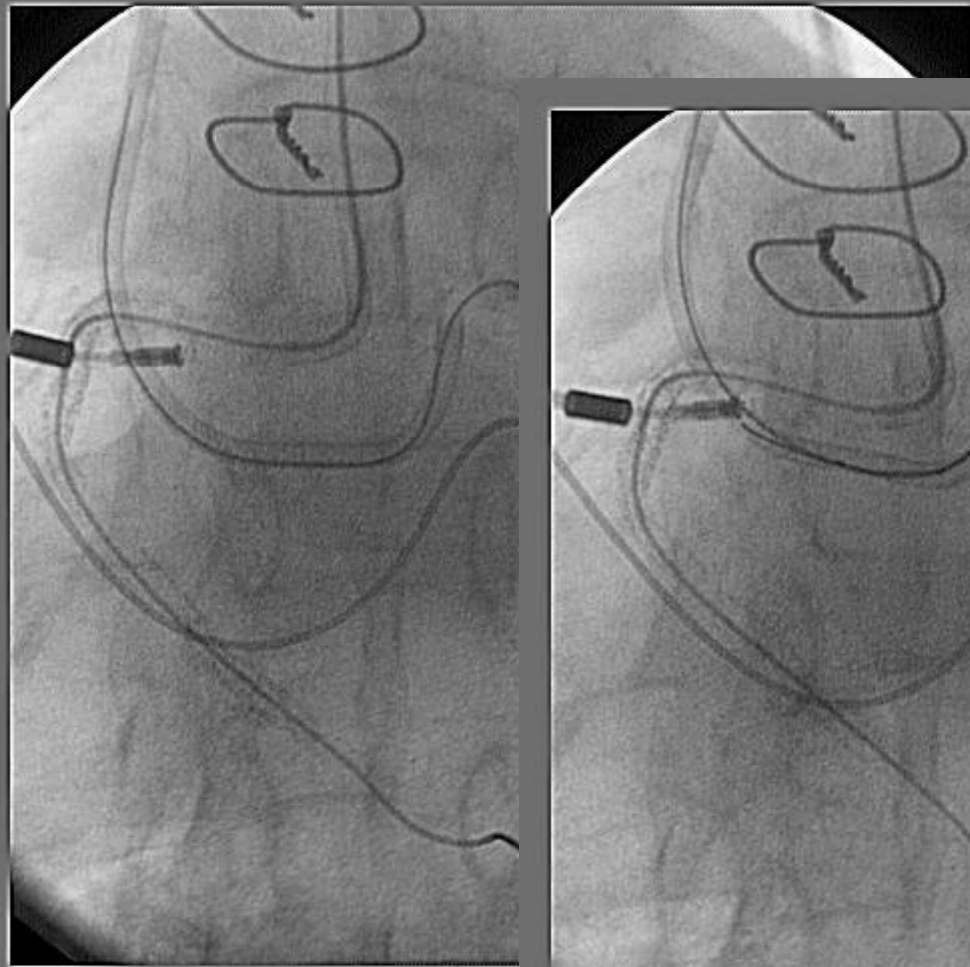
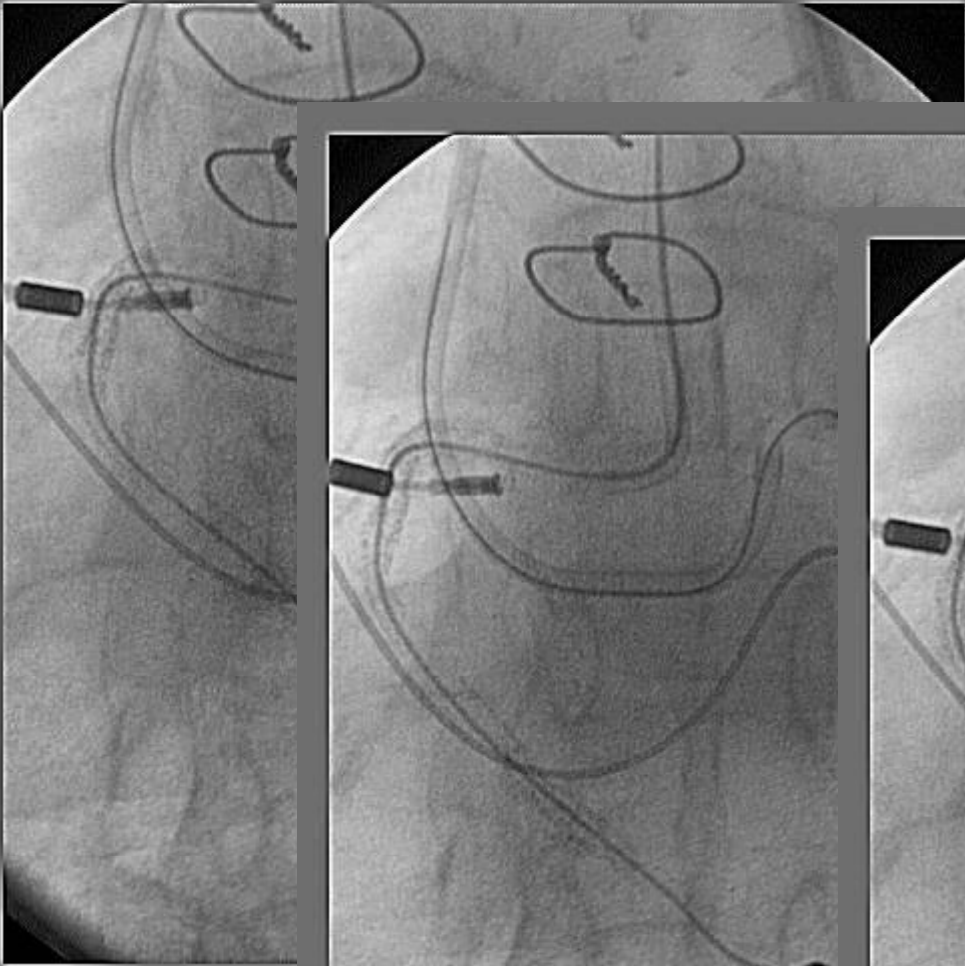
retrograde wiring ⇒ bilateral approach

(Sion blue → Fielder FC)



Antegrade wire(Fielder XT) was easily crossed into the subintimal space that had made by the 1<sup>st</sup> attempt PCI.

PCI to the proximal LCX-CTO  
(the 2<sup>nd</sup> Attempt)



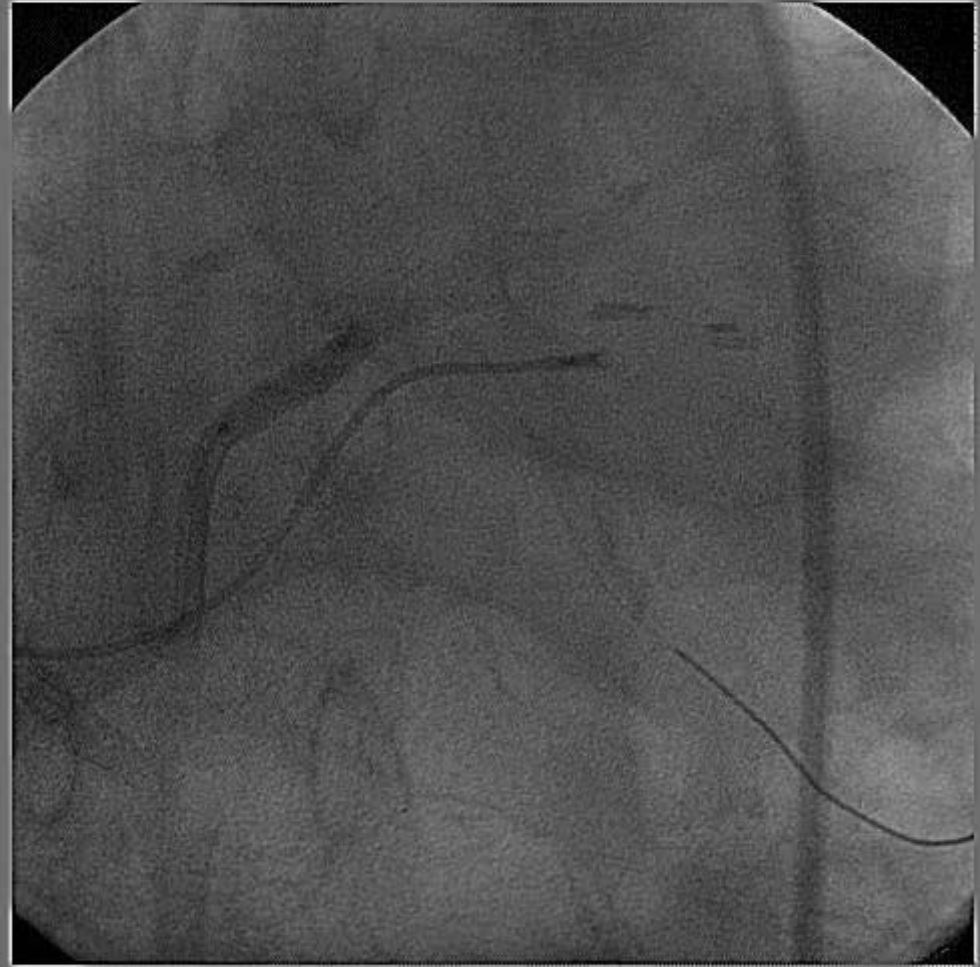
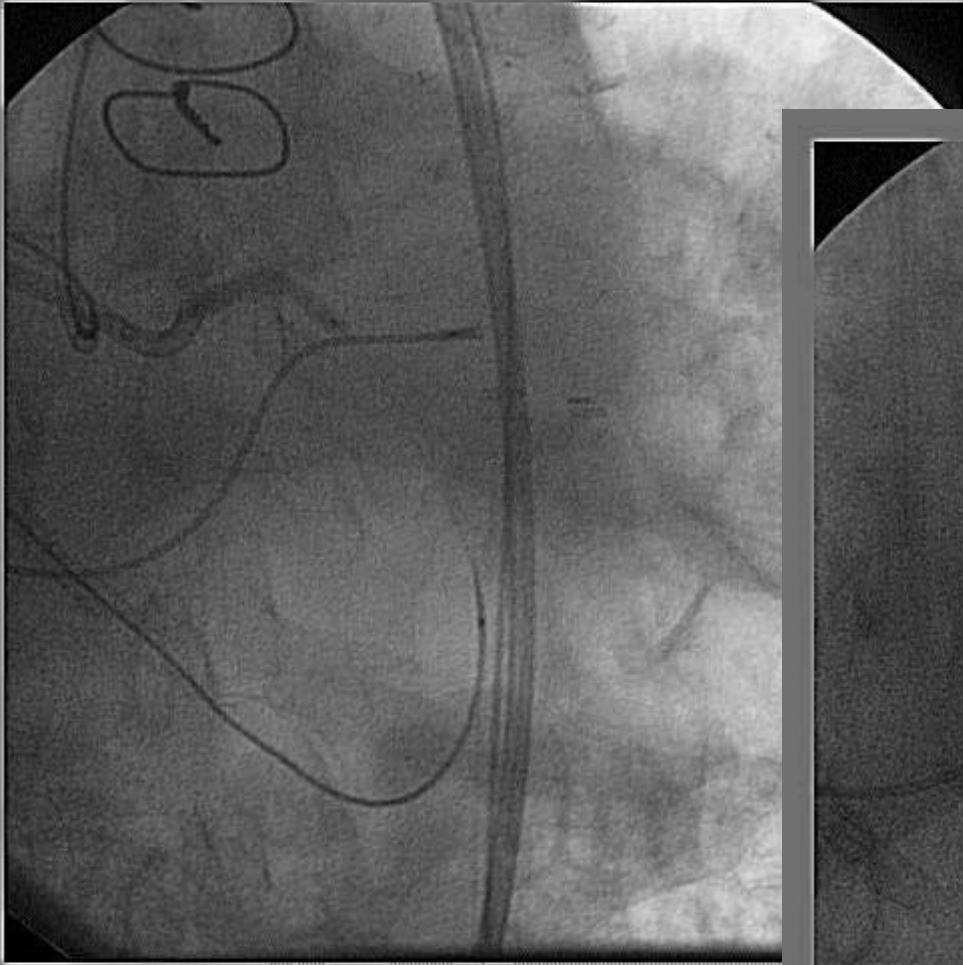
**Reverse CART** Fielder FC

2.0mm Tazuna balloon inflation to #11-#13 antegradely into subintimal space

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PCI to the proximal LCX-CTO (the 2<sup>nd</sup> Attempt)

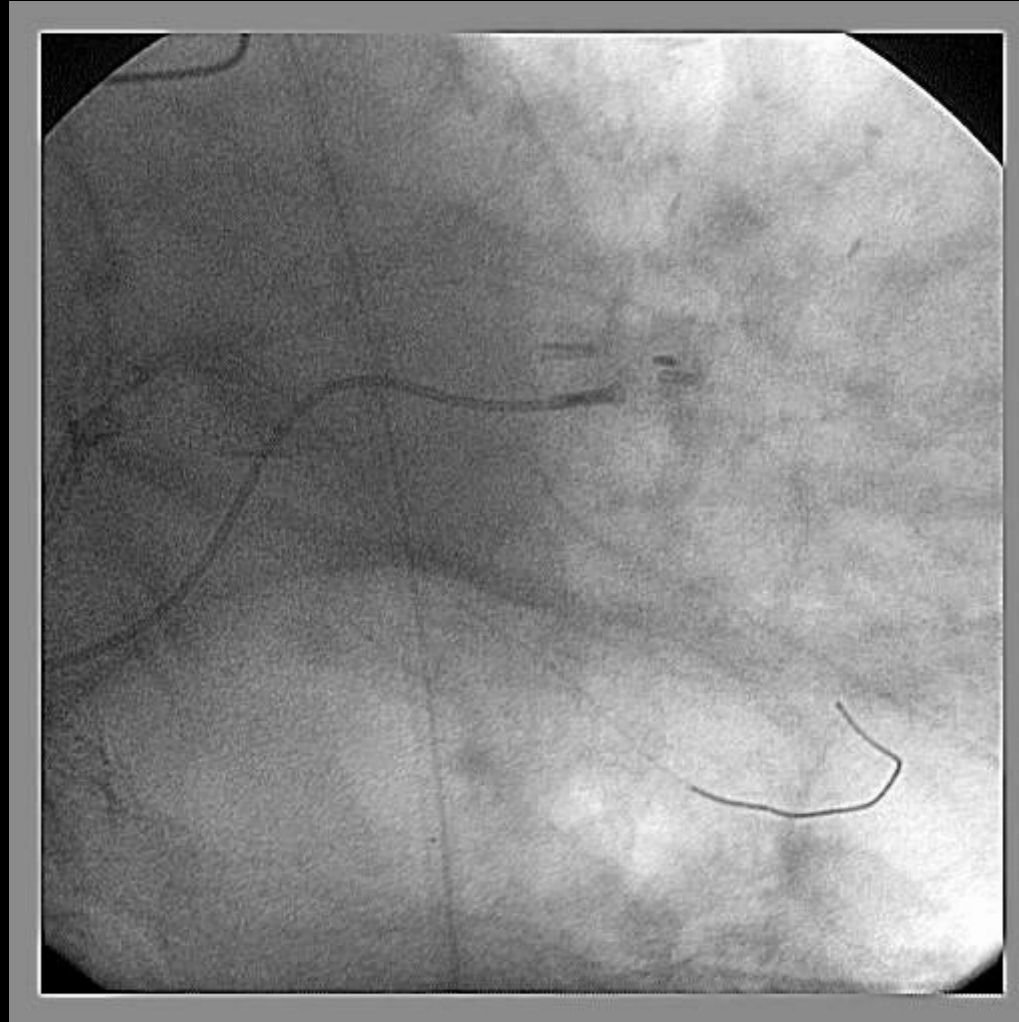


**Stenting**

**Xience V 3.5/15mm+Xience V 2.5/18mm**

# PCI to the proximal LCX-CTO (the 2<sup>nd</sup> Attempt)

Final



# Conclusion

**It was predicted that the collateral of atrial channel via AV groove was underlying in exact detail of these control angiographies.**

**Due to preceding revascularization to CTO of contralateral artery( i.e. the distal RCA-CTO of AV node branch), the latent atrial channel became clear.**

**It brought about success in the target vessel revascularization (the proximal LCX-CTO) that bilateral approach was applicable to the clarified atrial channel via AV groove.**