

**TCT AP 2013**

**PCI IN A SHEPHERD'S CROOK RCA:  
ISSUES, COMPLICATIONS AND  
MANAGEMENT ASPECTS**

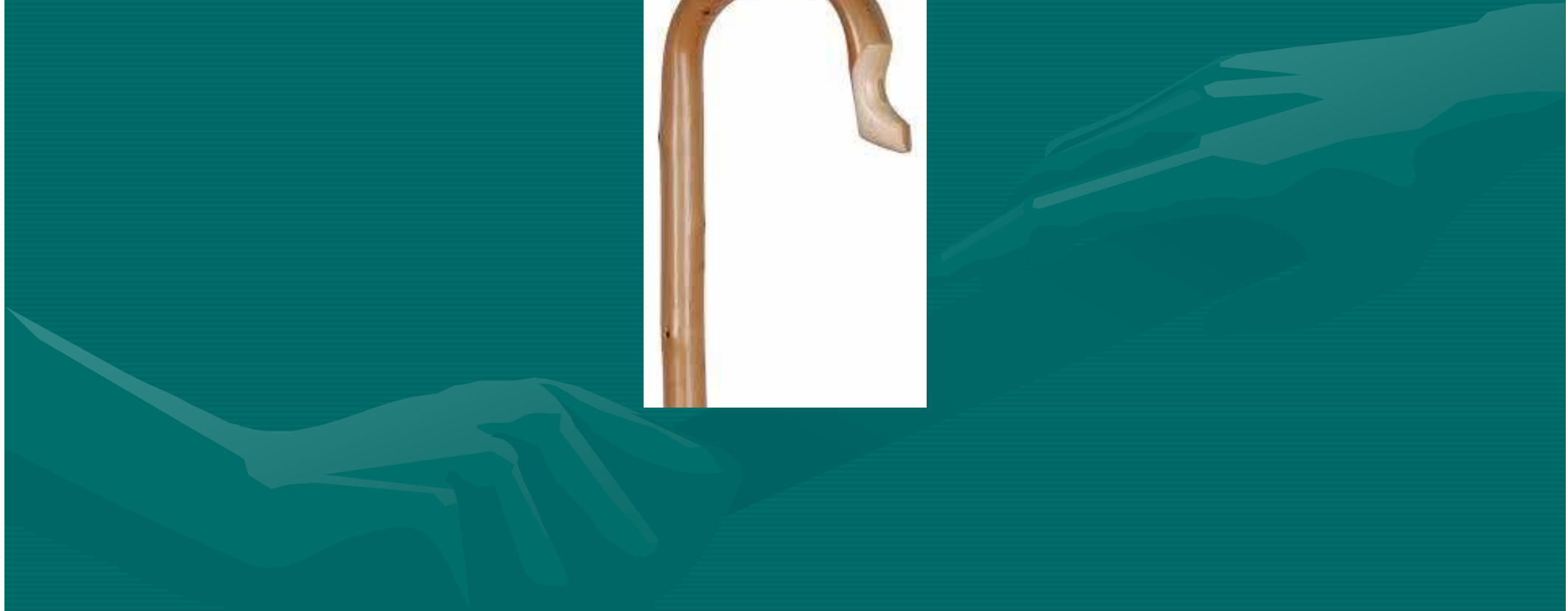
**DR. BINOY JOHN MD DM**

**SENIOR CONSULTANT INTERVENTIONAL CARDIOLOGIST**

**CREDENCE CARDIAC CENTER; TVM, KERALA**

**NH; BANGALORE**

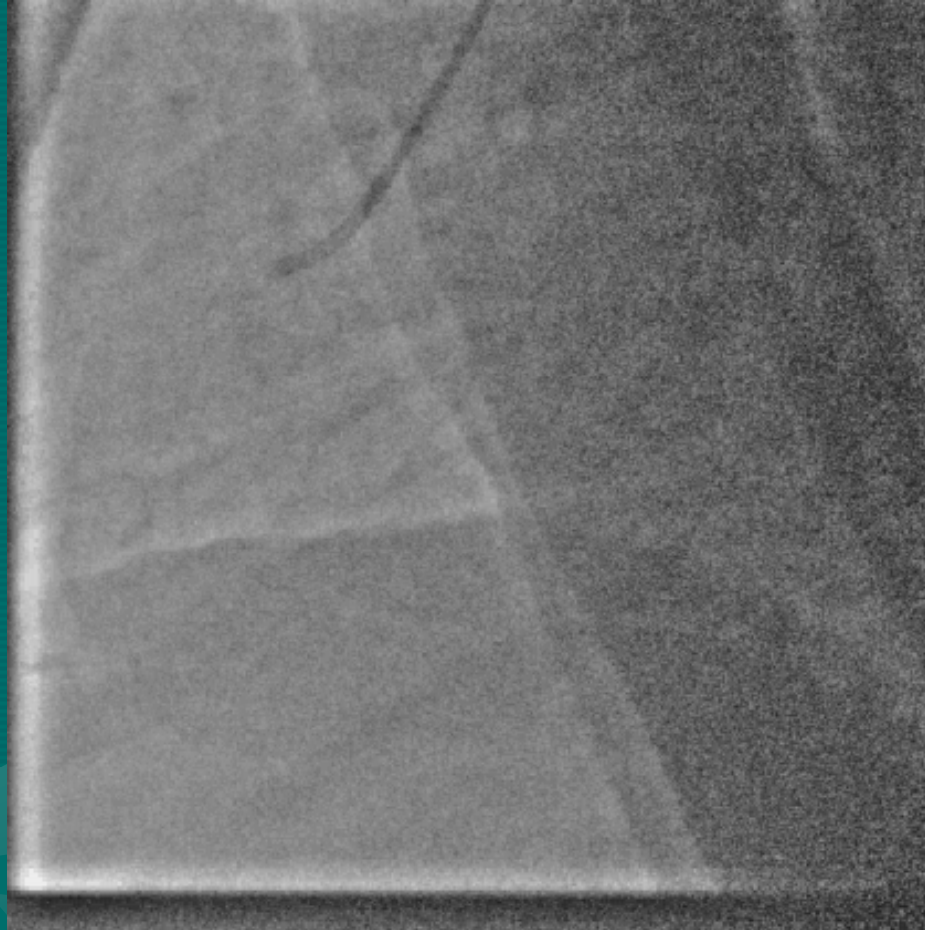
# THE SHEPHERD'S CROOK



# **SHEPHERD'S CROOK PCI: ISSUES AND DIFFICULTIES:**

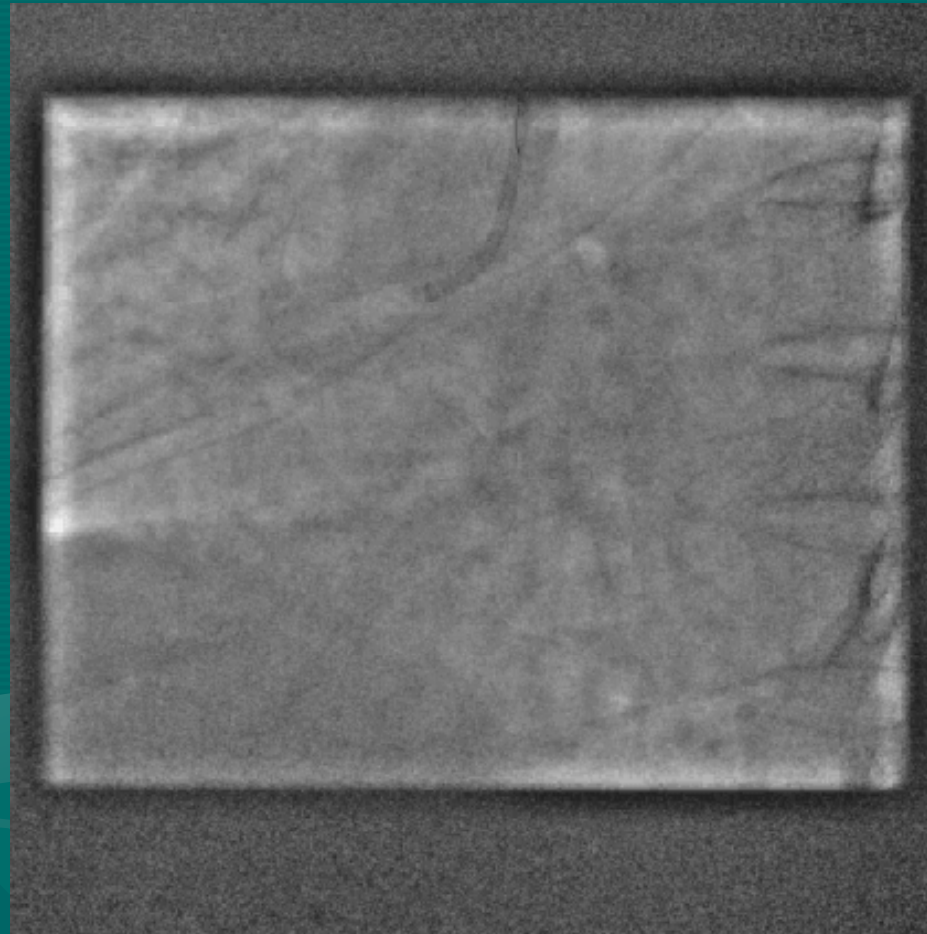
- 1. VERY HIGH CHANCE OF PROXIMAL GC INDUCED INJURY AND DISSECTION, ESP WHILE TRYING TO FORCIBLY TRACK OR REMOVE "OXFORD" BALLOONS AND HARD WARE**
- 2. PASSING "OX" WIRES THROUGH THE ACUTE BEND IS DEMANDING**
- 3. TRACKING "O" BALLOONS ESP NC BALLOONS AND STENTS IS VEXING**
- 4. CONCERTINA IS A MECHANISM WHICH CAN MIMIC DISSECTIONS AND SPASM**
- 5. AND FINALLY, RE WIRING THROUGH BENDS AND THROUGH THE STENTS WITHOUT STRUT PASSAGE IS DEMANDING.**

# THE SHEPHERD'S CROOK RCA



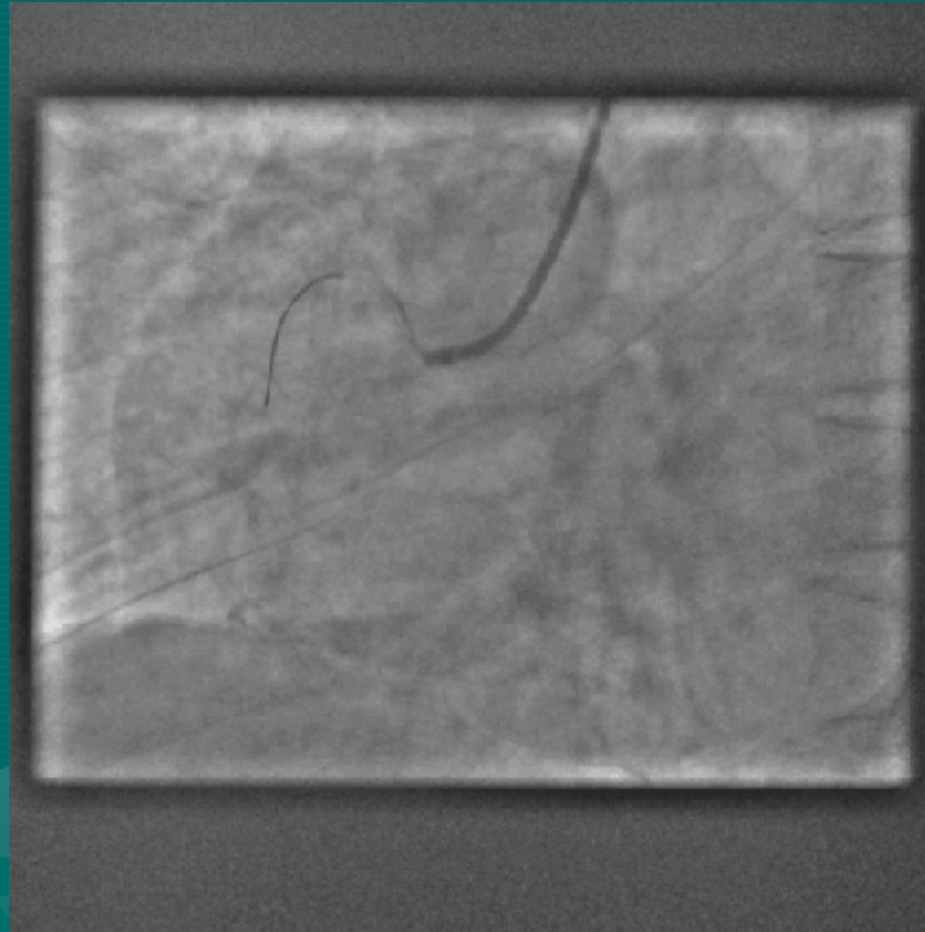
**DIFFICULTY 1:**

**THE FIRST "O" WIRE FAILED TO PASS CAUSING ACUTE CLOSURE OF THE VESSEL.**



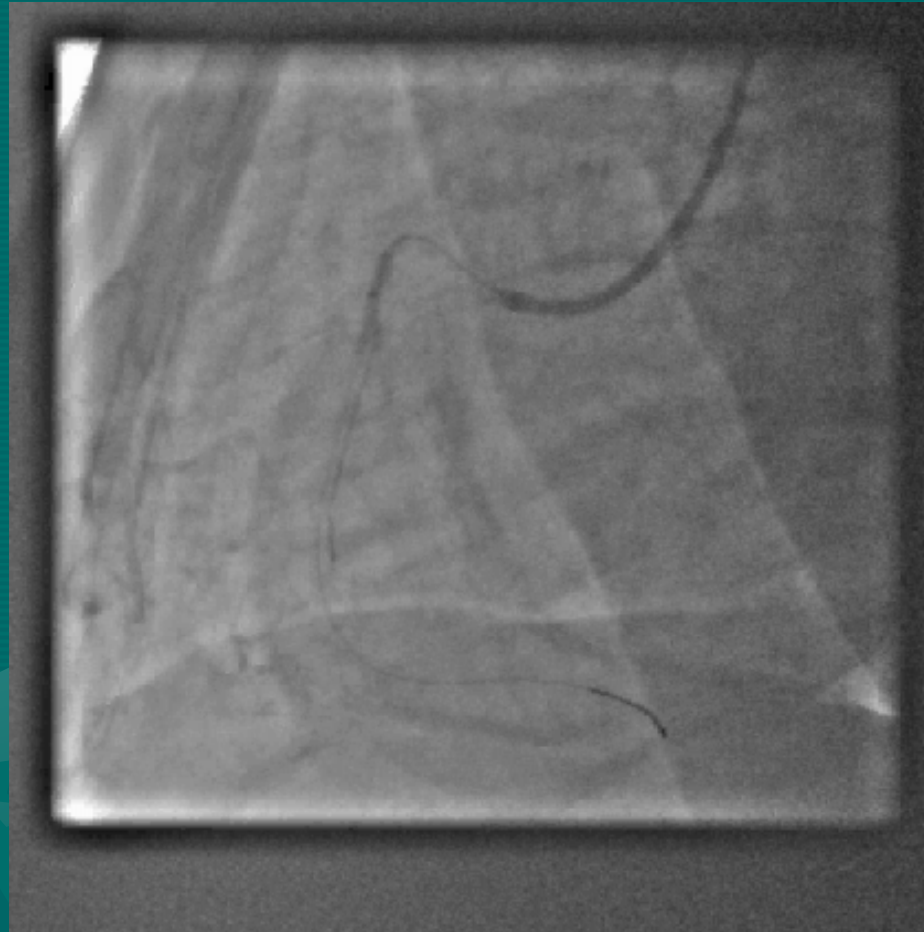
**SOLUTION:**

**THE WIRE CURVE WAS CHANGED TO CROSS THE LESION**



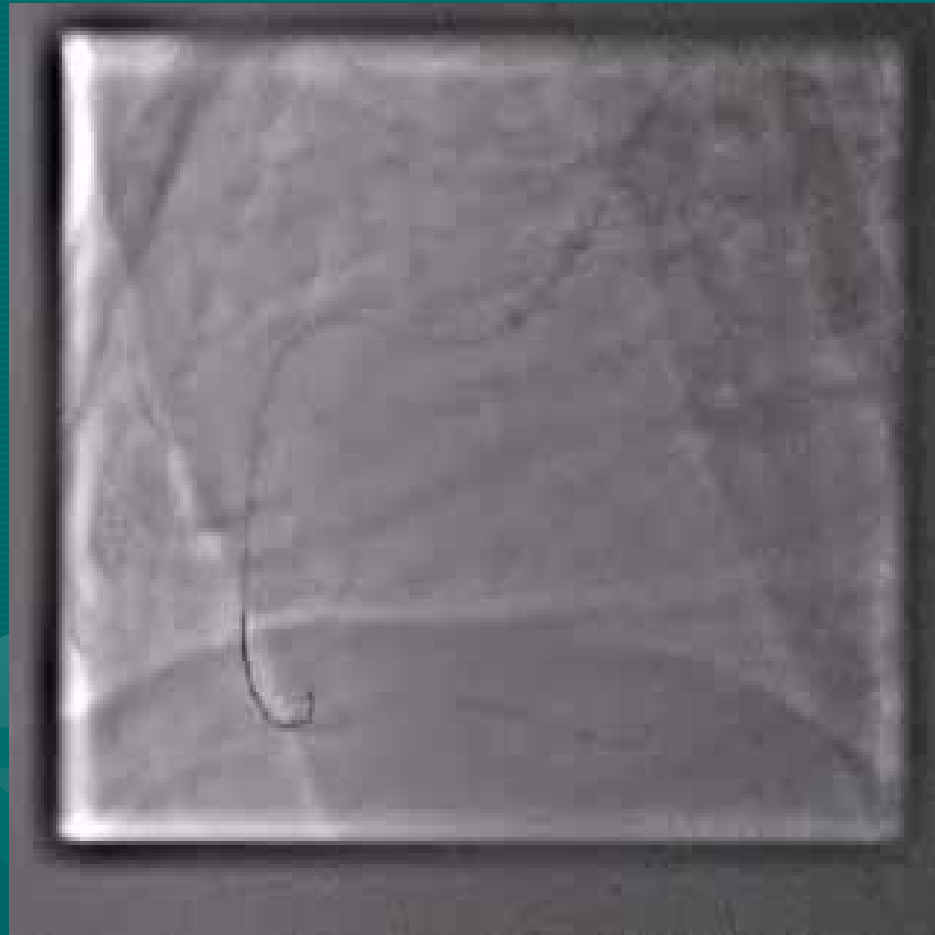
**DIFFICULTY 2: 2.0 BALLOON FAILED TO ADVANCE**

**SOLUTION: A LOWER PROFILE 1.5 BALLOON TAKEN AND LESION PRE DILATED**



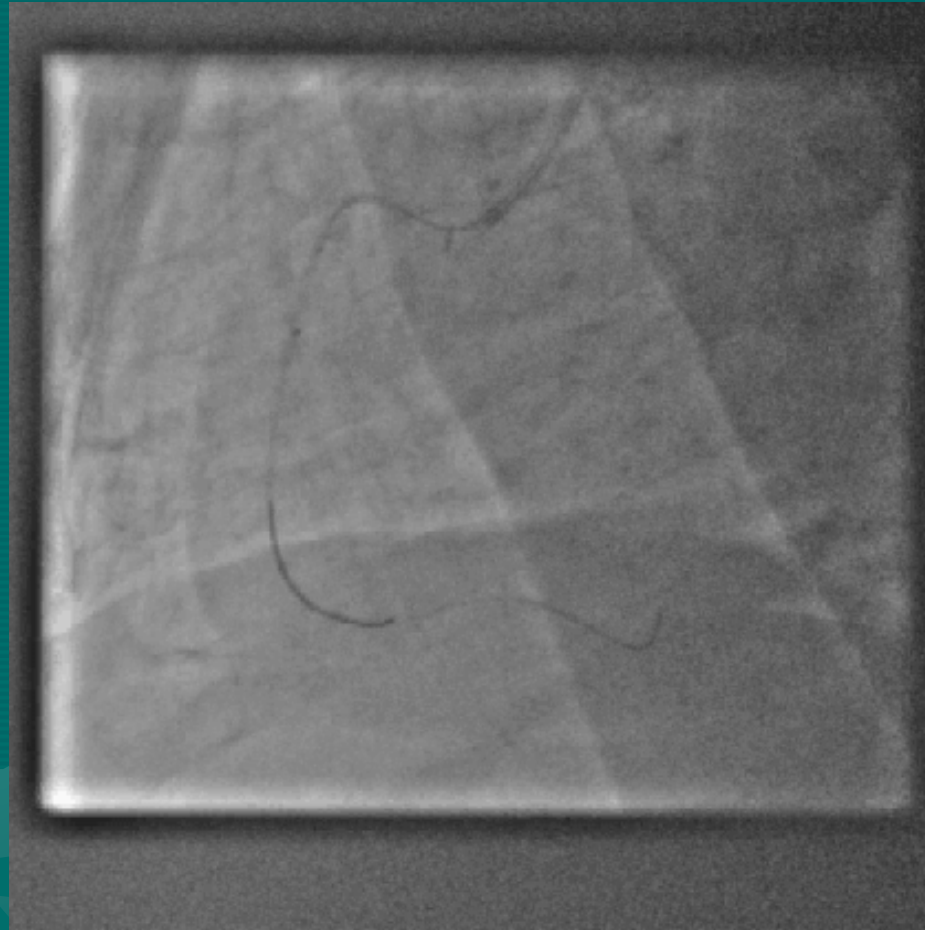
**DIFFICULTY 3: FAILURE OF “O” 2.0 BALLOON TO CROSS**

**SOLUTION: A SECOND (BUDDY) WIRE WAS PLACED AND THE BALLOON TRACKED.**

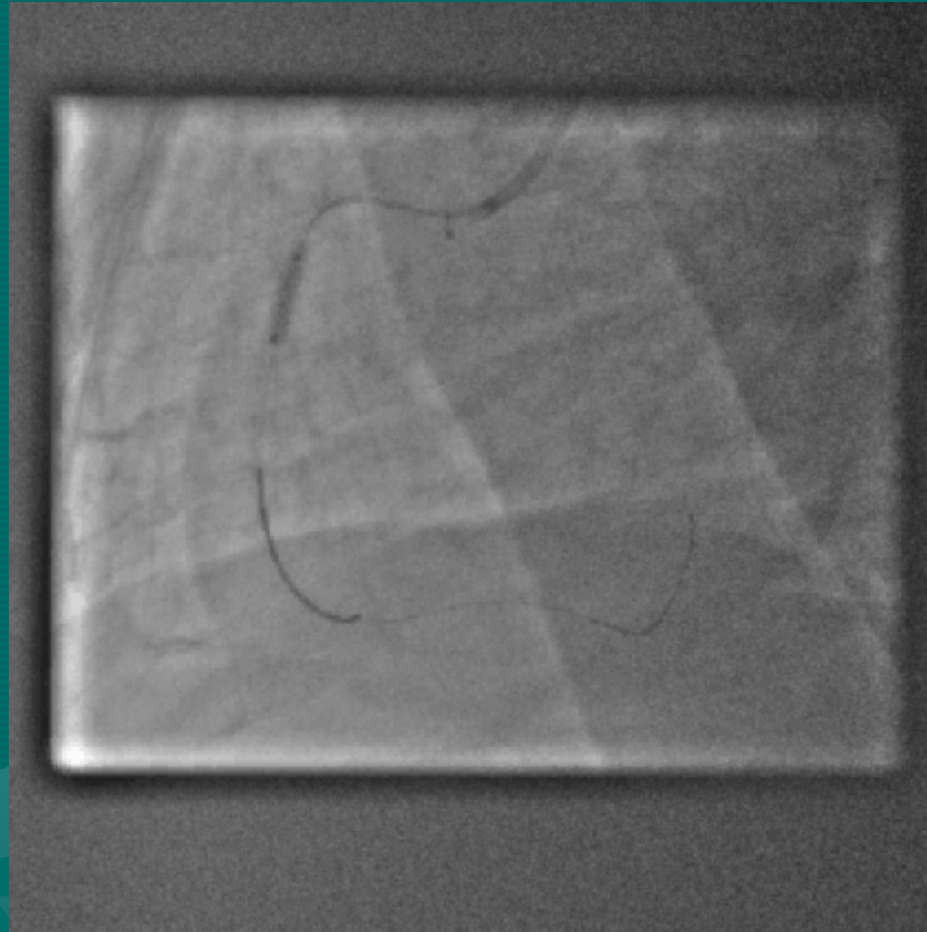




**ISSUE 4: THE BALLOON TRACKED, BUT, THE PROX RCA HAS DISSECTED (SEE STAINING) WITH NO FLOW.**

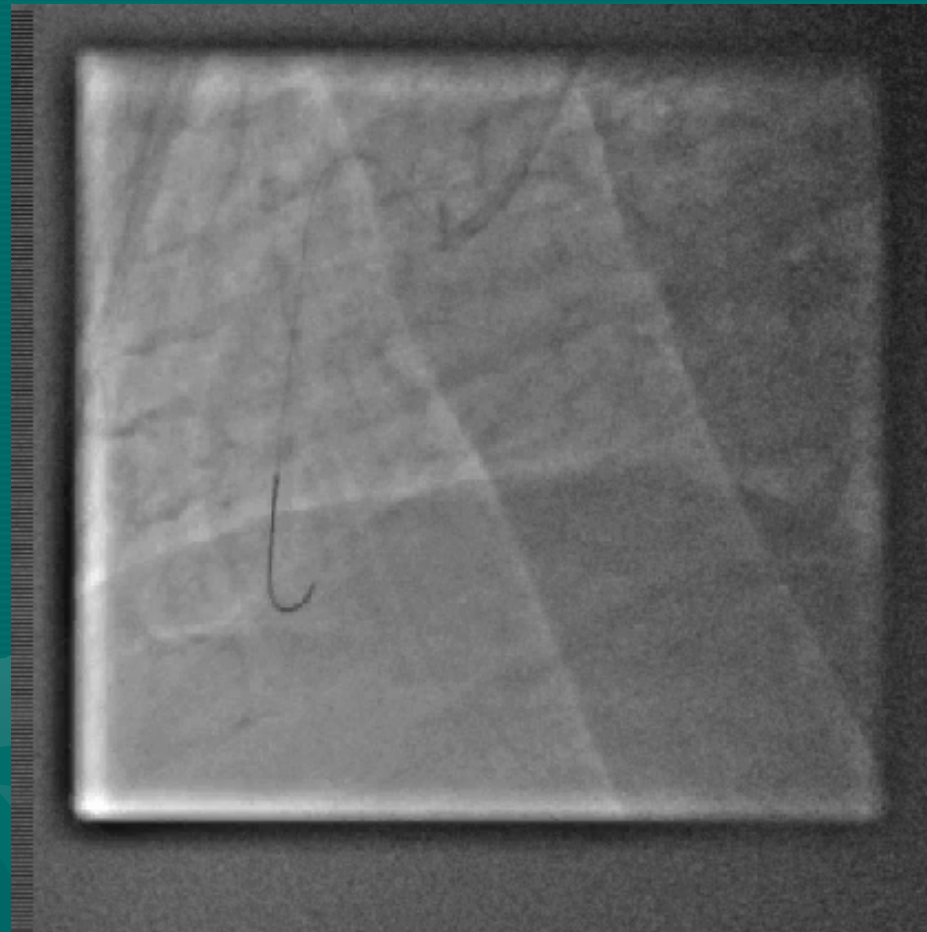


**PRE DILATATION WAS DONE**

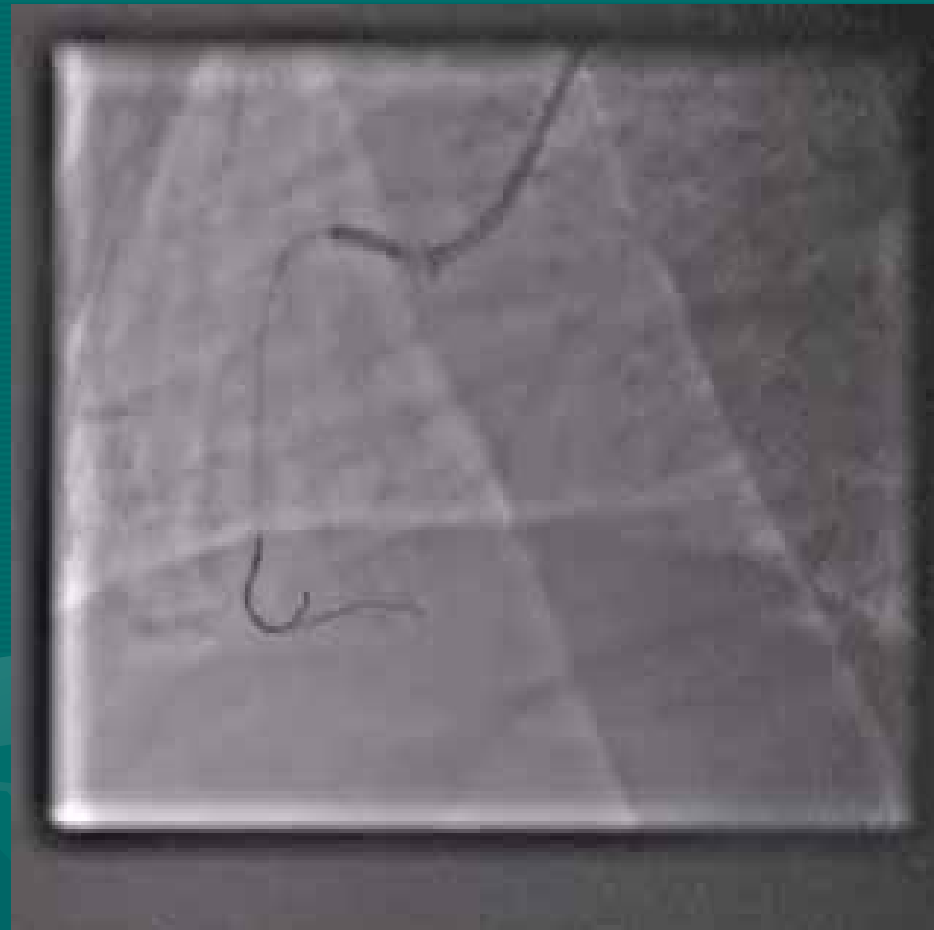


**ISSUE 5: TO RULE OUT CONCERTINA:**

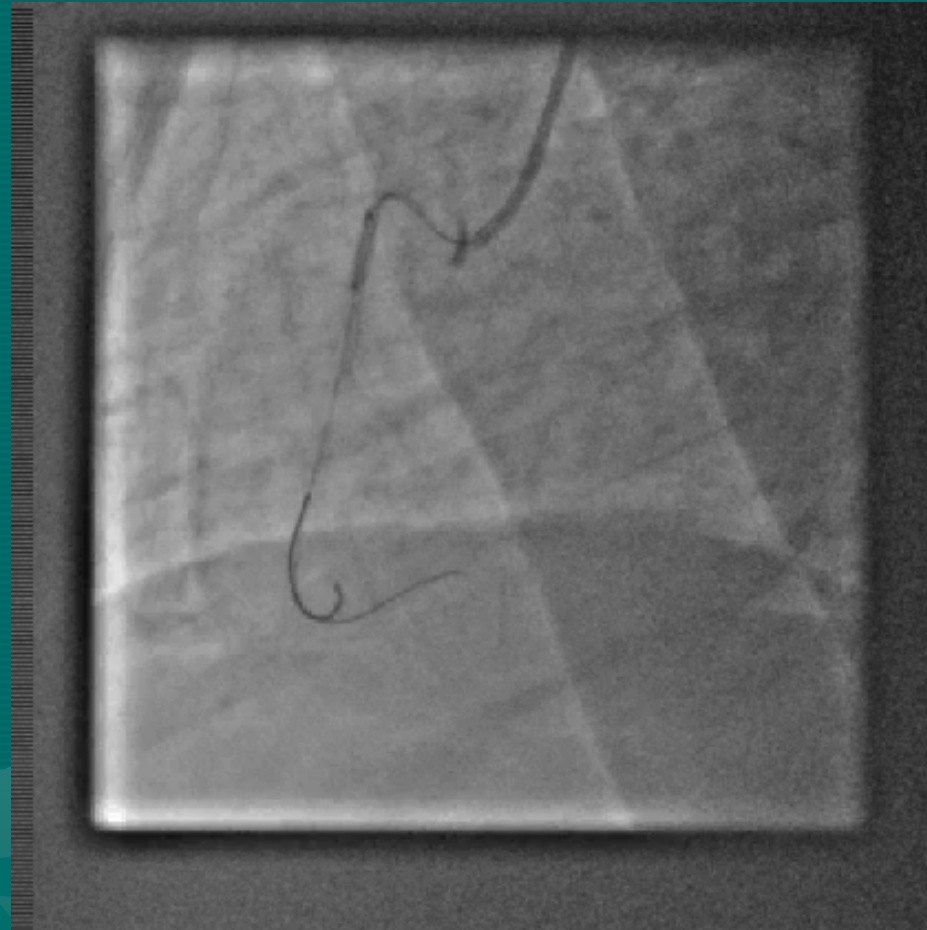
**SOLUTION: THE BUDDY WIRE WAS REMOVED BUT THE OCCLUSION PERSISTED.**



**BUDDY WIRE REINSERTED AND PRE DILATATION OF PROX LESION REPEATED.**

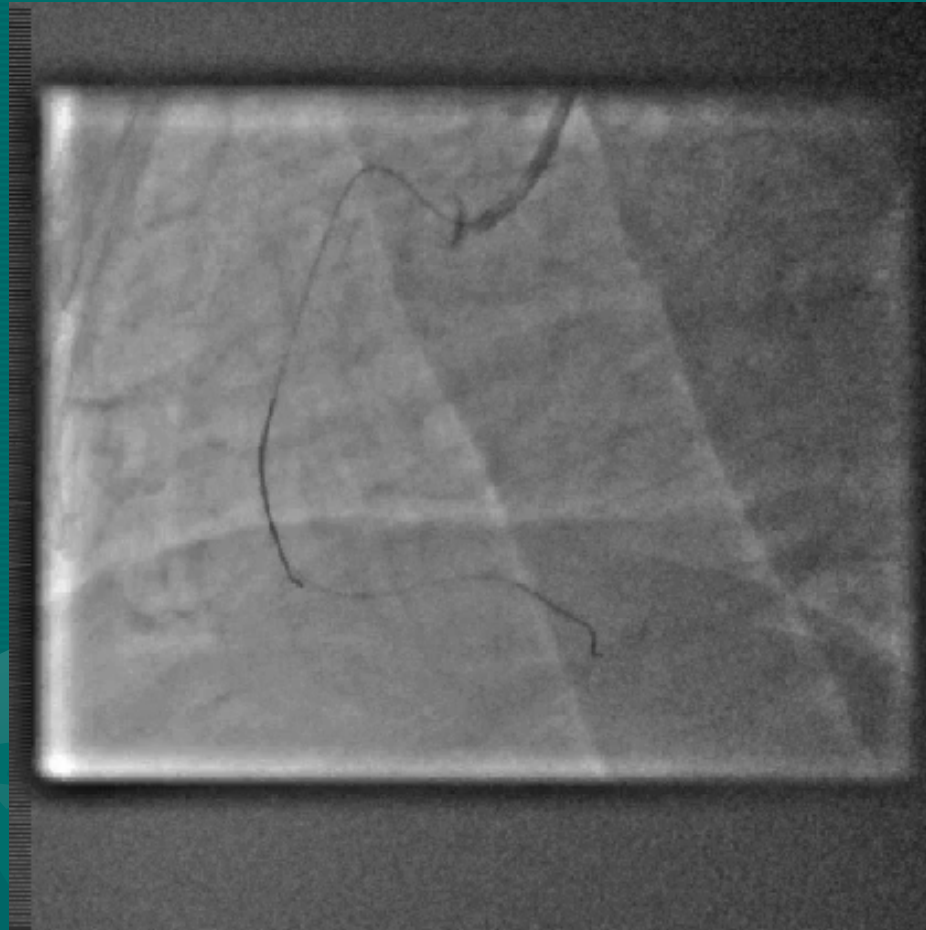


# **SERIAL DILATATIONS WERE DONE IN THE PROX AND MID SEGMENTS**



**ISSUE 6: CHEST PAIN AND HYPOTENSION DUE TO PROLONGED  
NO FLOW**

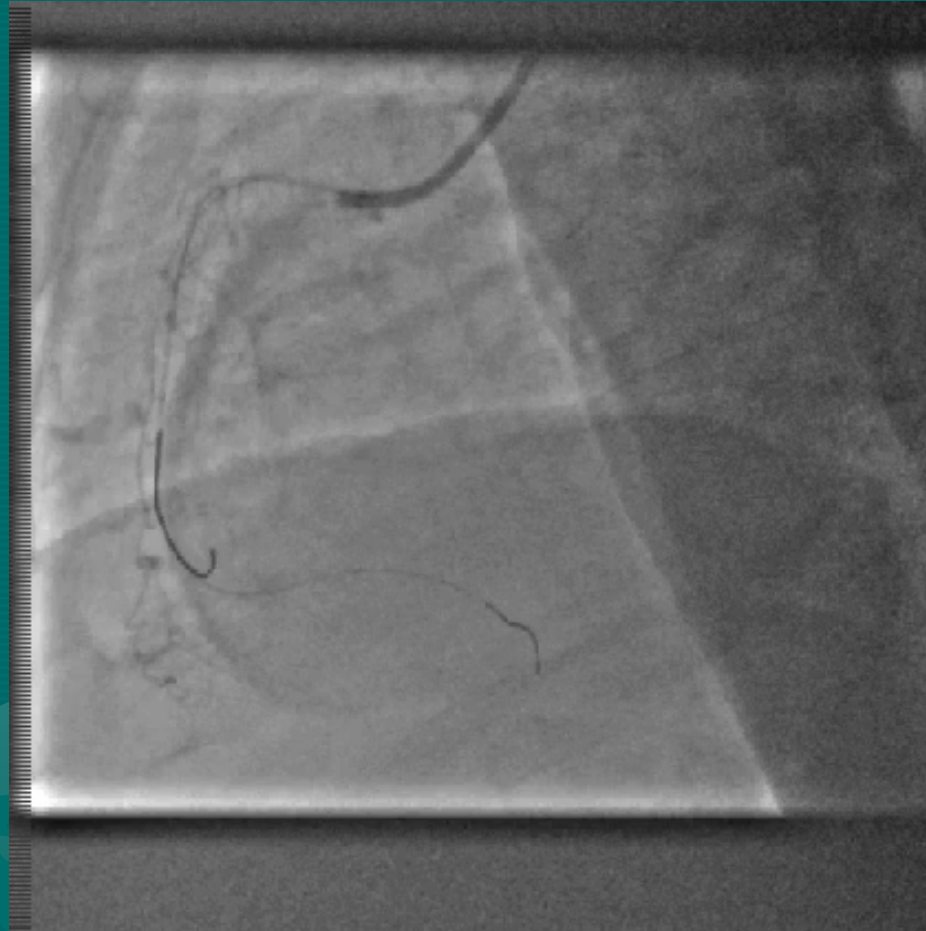
**SOLUTION: DOPAMINE INITIATED**



**ISSUE 7: TO AVOID ANY COMPLICATING BRADYARRHYTHMIAS AND FURTHER HEMODYNAMIC COMPROMISE FROM NO FLOW, SOLUTION: 2.75 X 20 MM STENT WAS DEPLOYED AS QUICKLY AS POSSIBLE WITH DISTAL FLOW RE ESTABLISHED.**



## NEW ISSUE 8: PERICARDIAL STAINING!!!

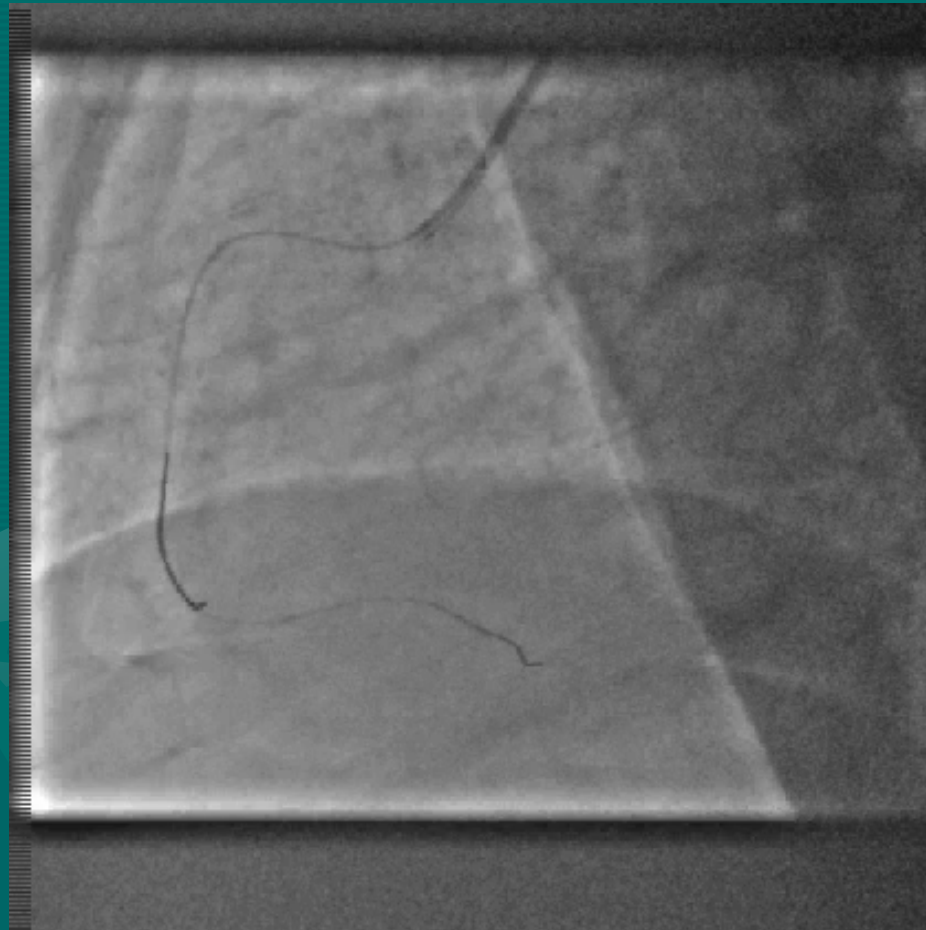




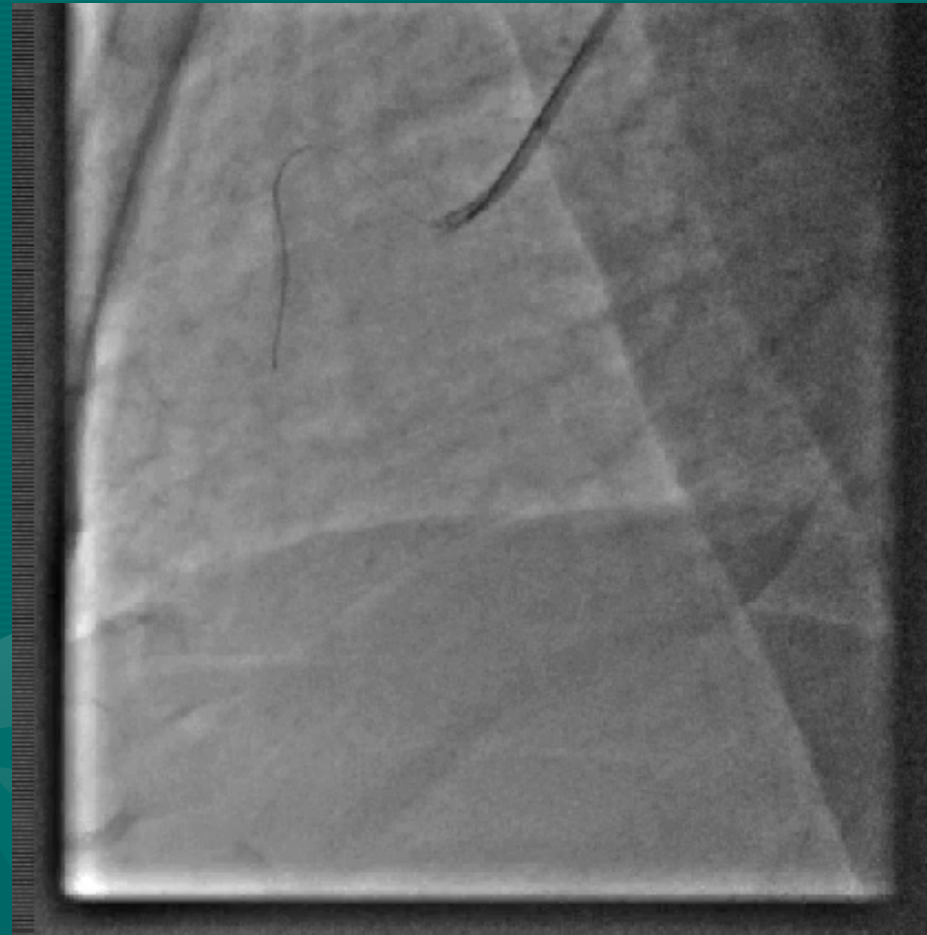
**ISSUE 9: SHOULD I REVERSE HEPARIN?**

**SOLUTION: PROLONGED INFLATION WITH STENT BALLOON PERFORMED**

**AND AS ECHO DID NOT SHOW ANY PROGRESSION: HEPARIN WAS NOT REVERSED BUT I AVOIDED ADDITIONAL HEPARIN.**

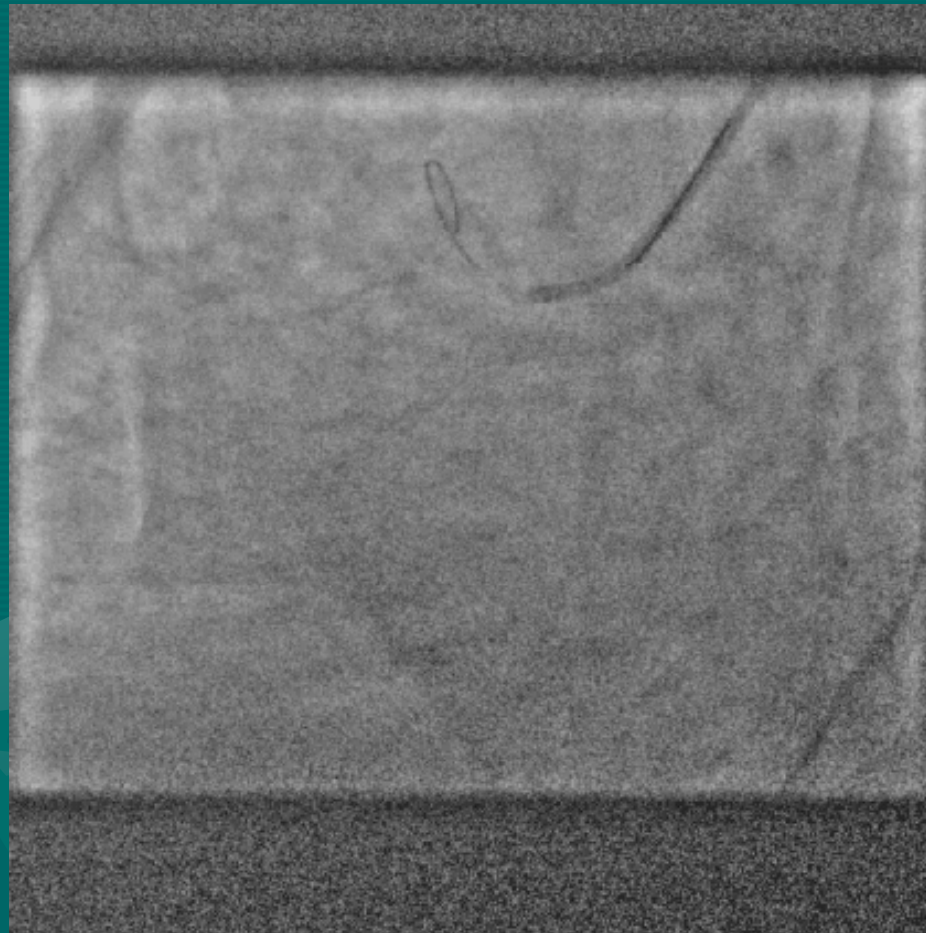


**ISSUE 10: TO ASSESS LENGTH OF DISSECTION AND STENT LENGTH**  
**SOLUTION: NO OPTION BUT TO REMOVE ONE WIRE COMPLETELY AND**  
**THE SECOND WIRE PARTIALLY, JUST INTO THE STENT**

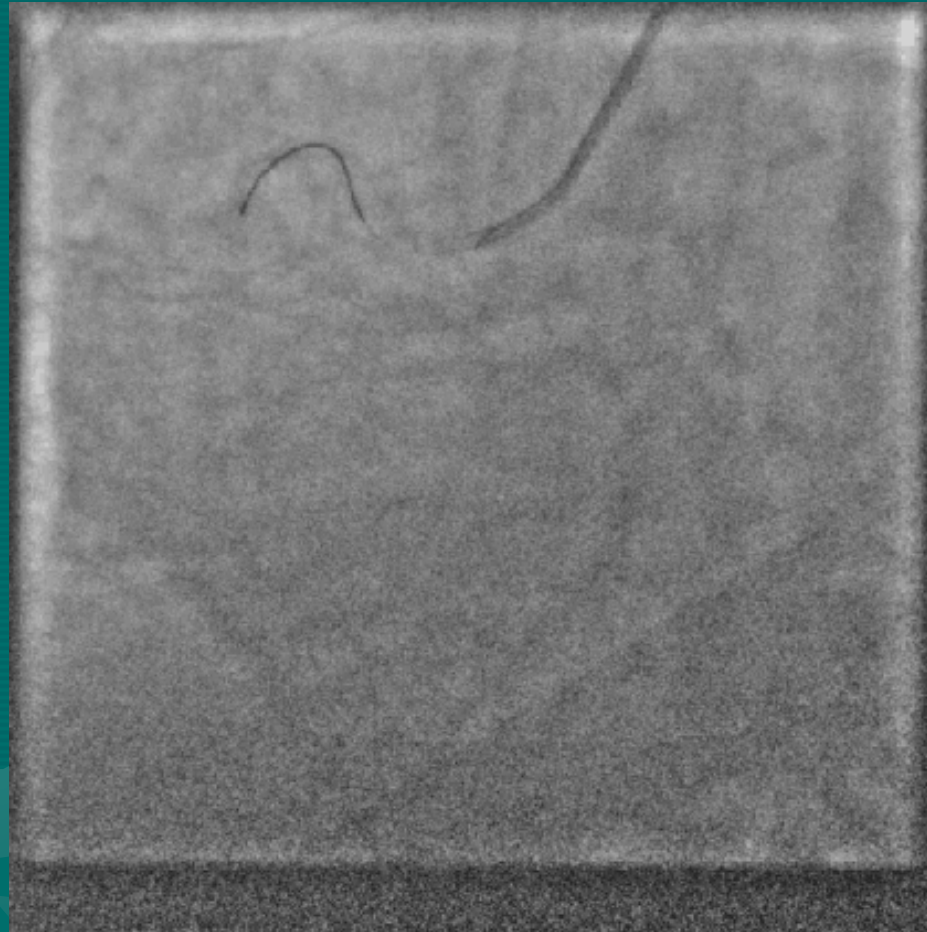


**ISSUE 11: INADVERTENTLY THE SECOND WIRE ALSO CAME OFF FROM WITH IN THE STENT**

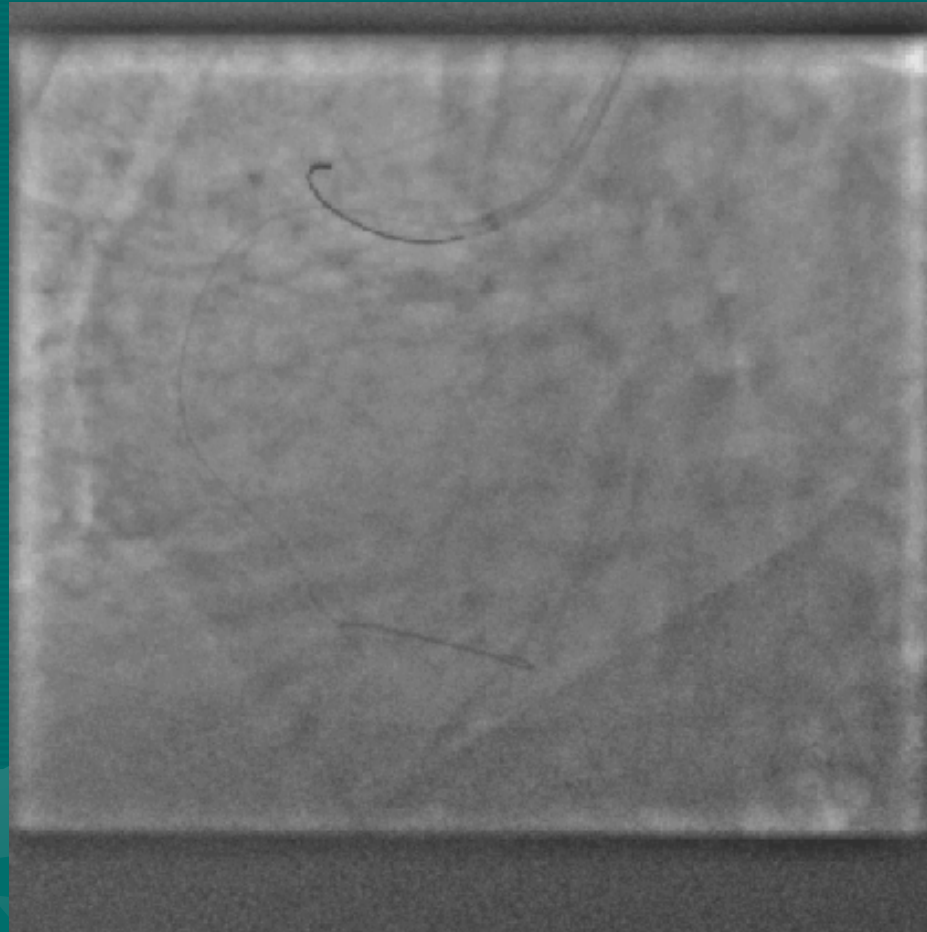
**SOLUTION: CAUTIOUS REWIRING WITHOUT ENLARGING THE SPIRAL DISSECTION AND PASSAGE OF WIRE UNDER THE STRUTS.**



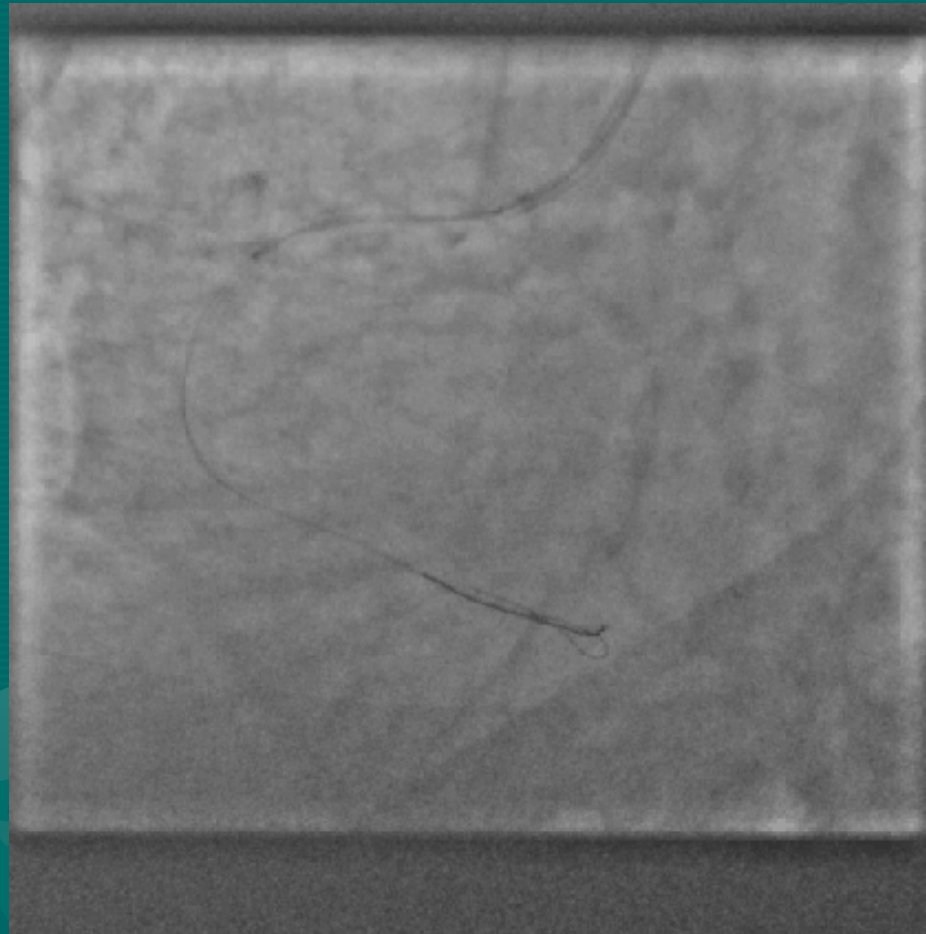
## WIRING STRATEGY:



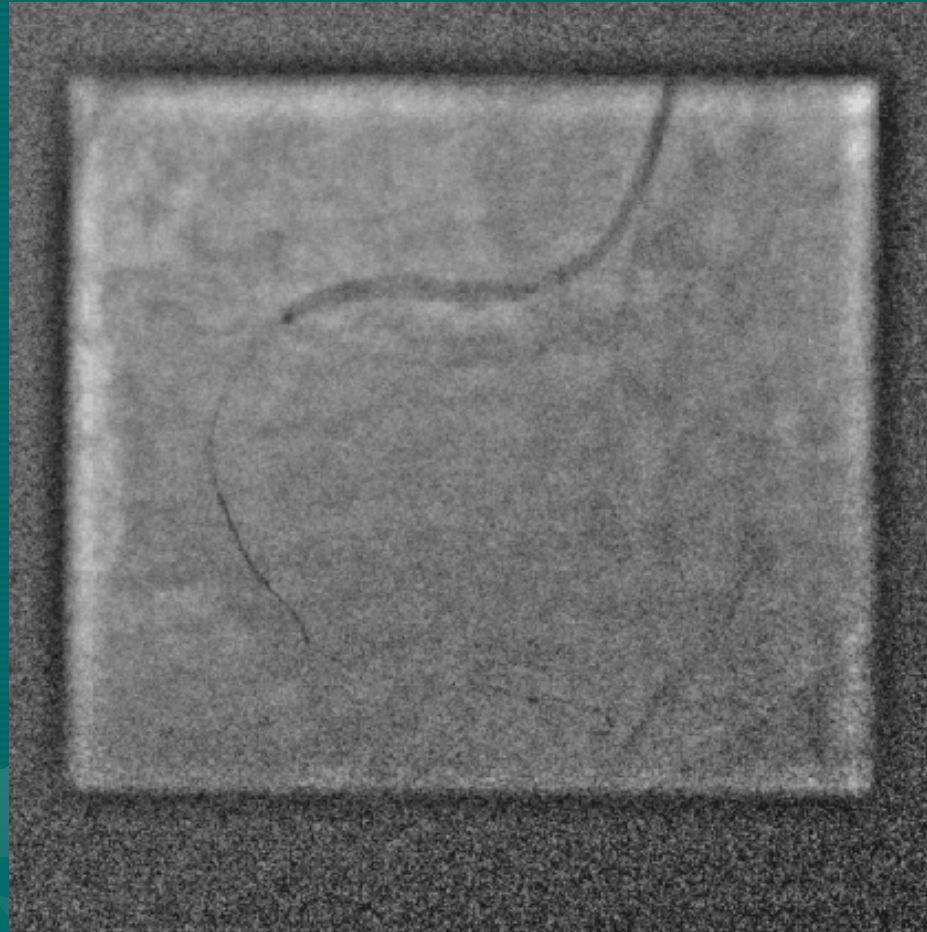
# SECOND WIRE ALSO ADVANCED SIMILARLY



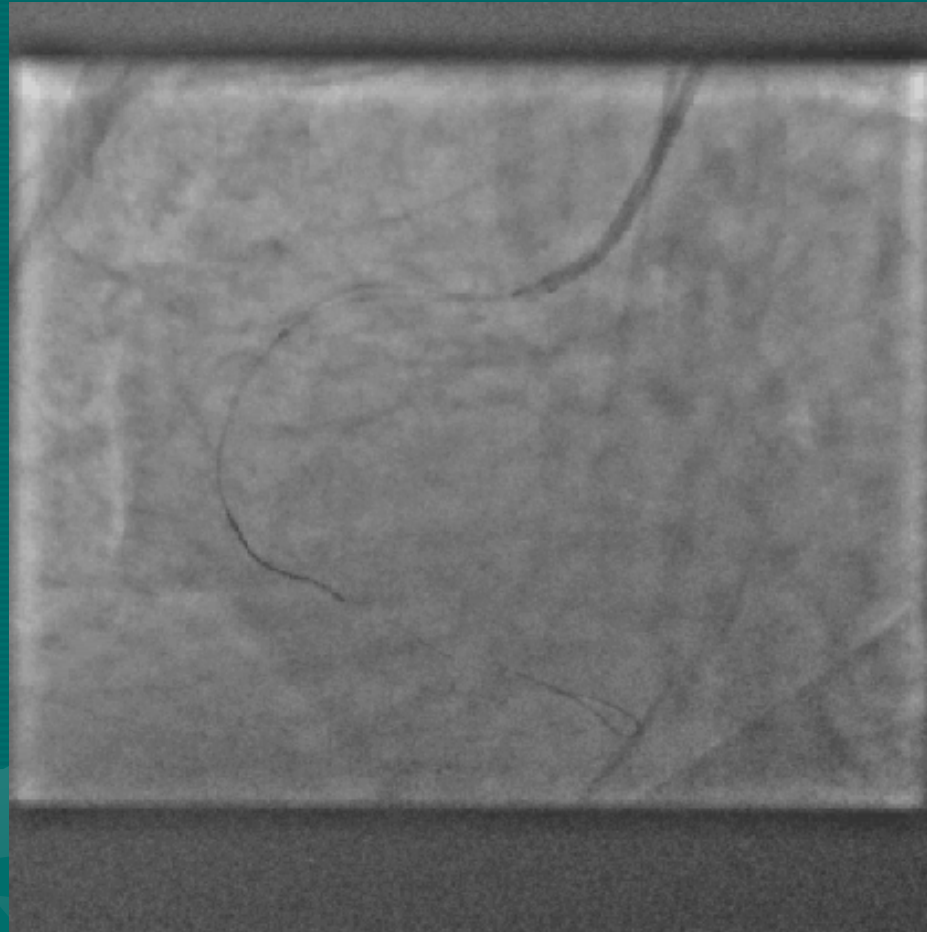
**THE LONGEST STENT 3.0 X 28 mm AVAILABLE POSITIONED  
FROM OSTIUM (NO OVERLAP WAS POSSIBLE)**



**STENT WAS DEPLOYED AND OSTIUM FLARED.**

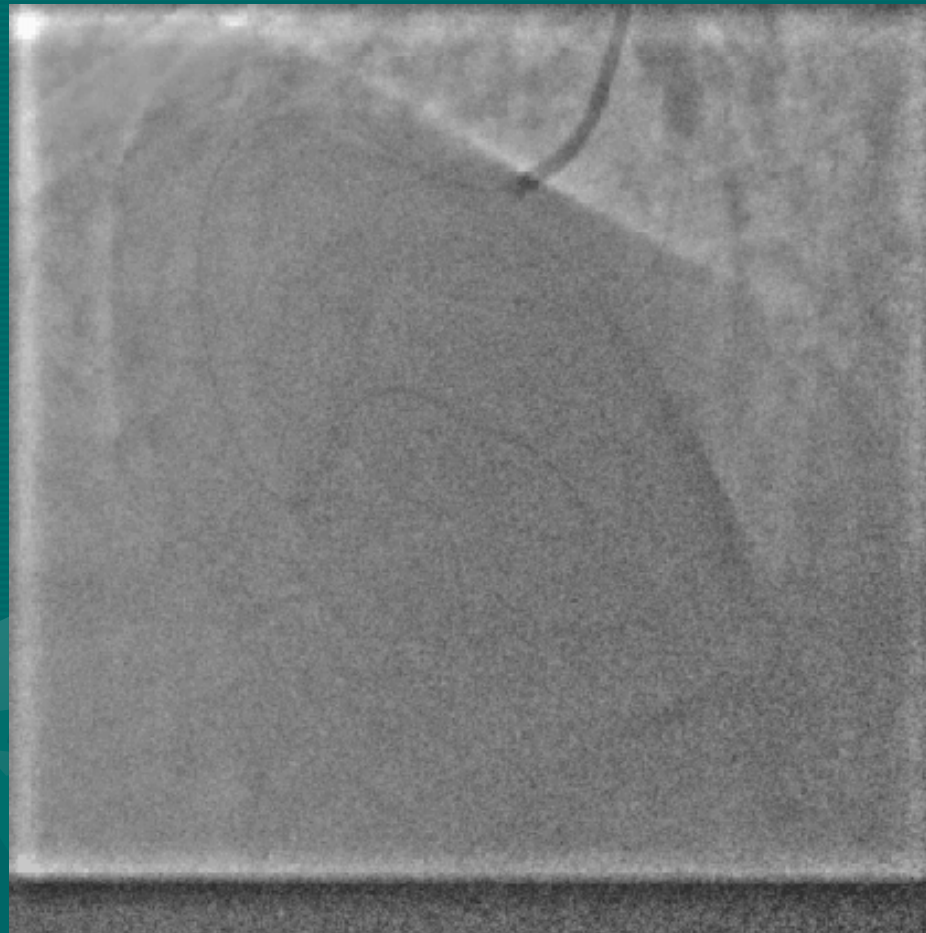


**THE DISSECTION WAS SEALED AND FLOW WAS TIMI III**

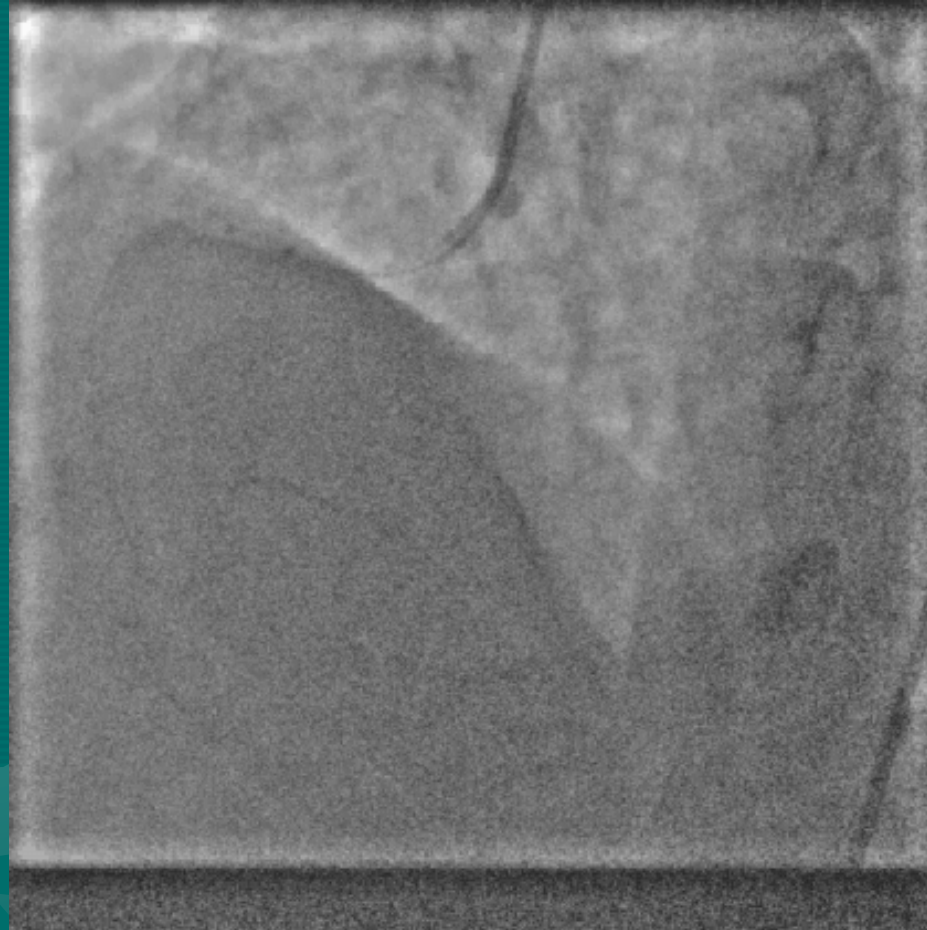




**ISSUE 12: NEW PROBLEM:  
HAZINESS IN THE UN COVERED SEGMENT BETWEEN  
STENTS**



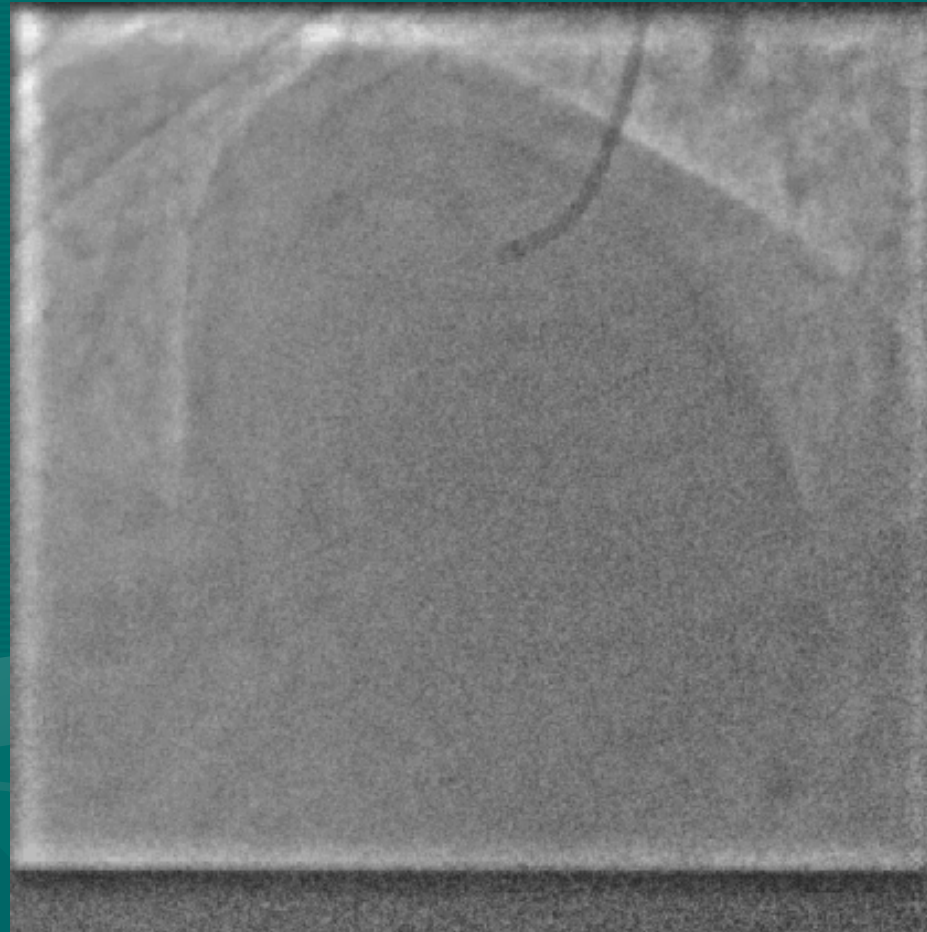
# TRIED BALLOON DILATATION



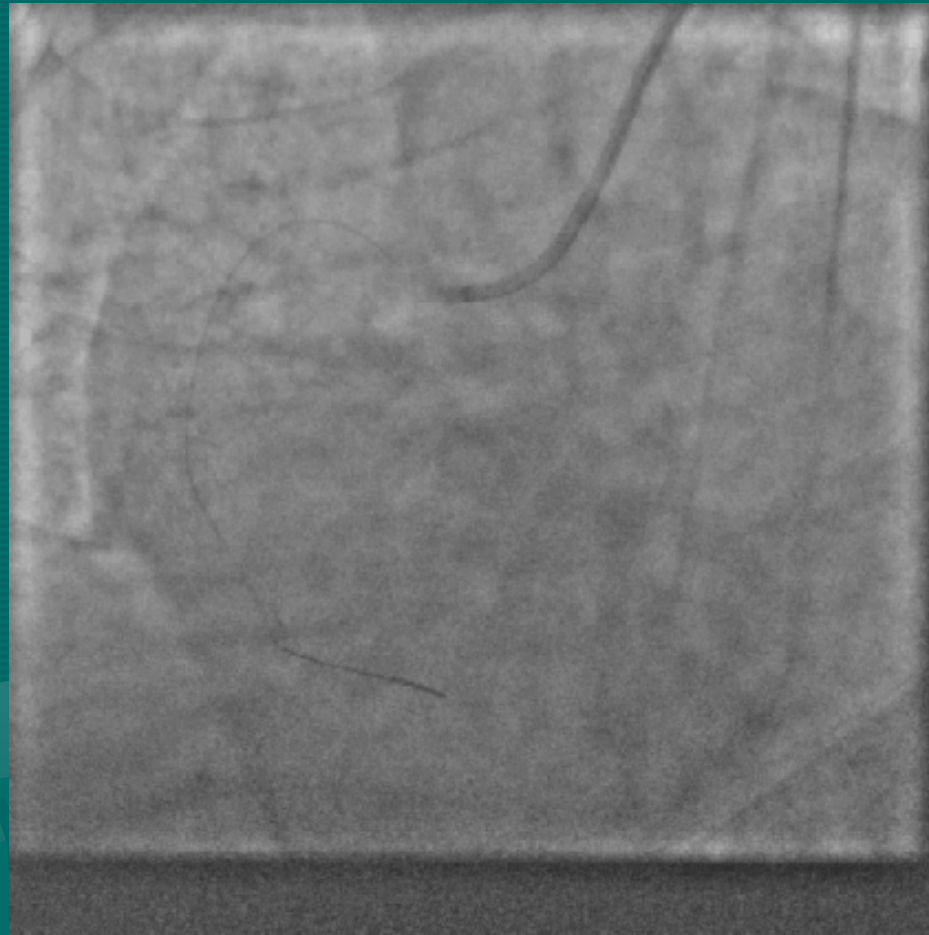
**ISSUE: HAZINESS STILL PERSISTENT!!!**

**??? CONCERTINA**

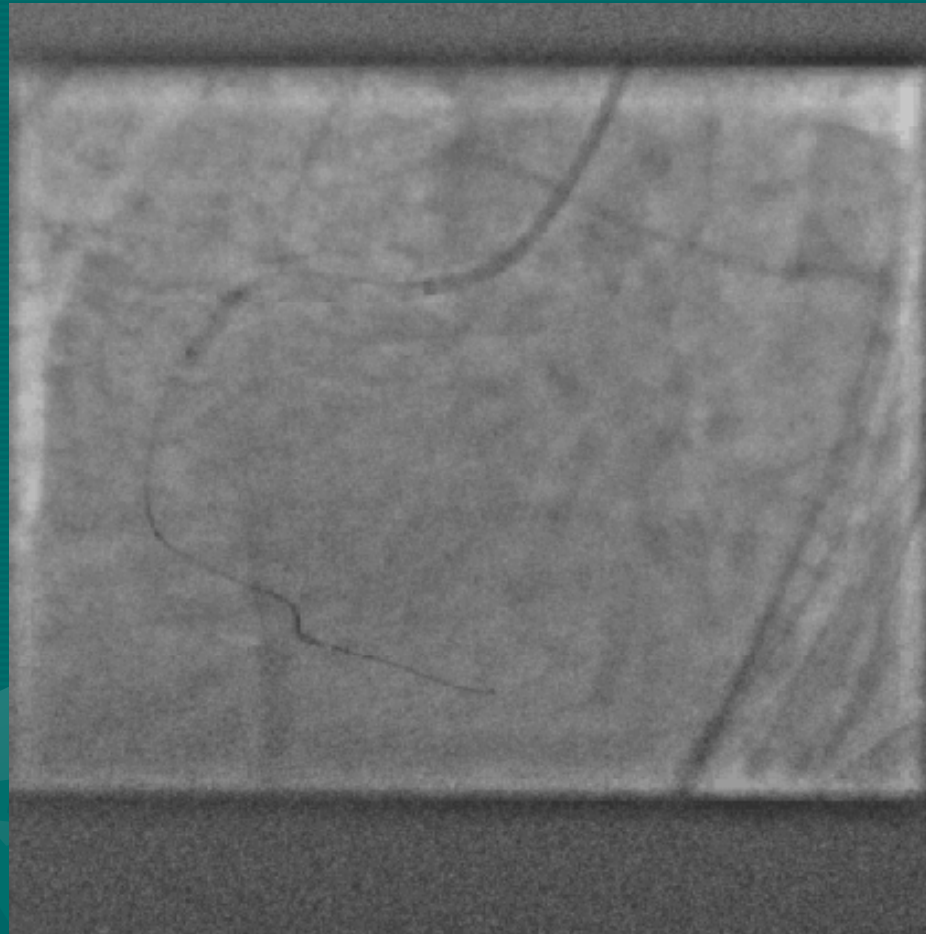
**SOLUTION: NO CHOICE BUT AGAIN REMOVE BOTH WIRES. BUT LESION PERSISTENT.**



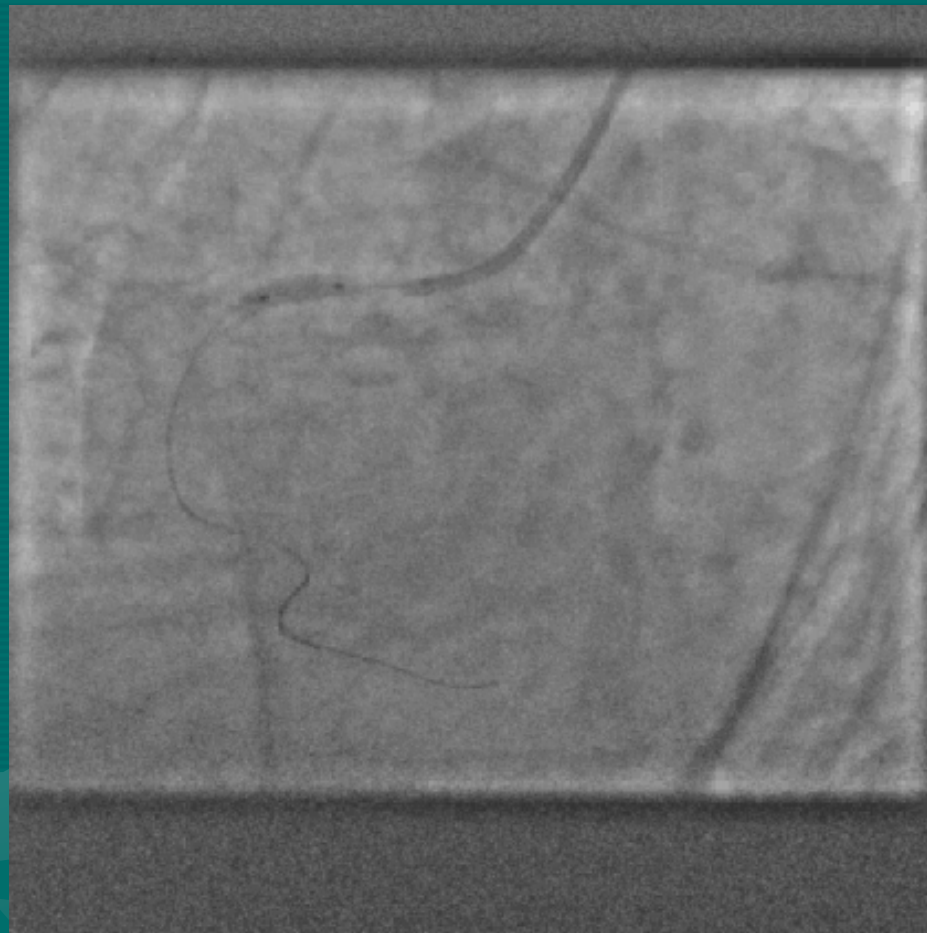
# **ISSUE: 3 RD TIME VESSEL AGAIN RE-WIRED**



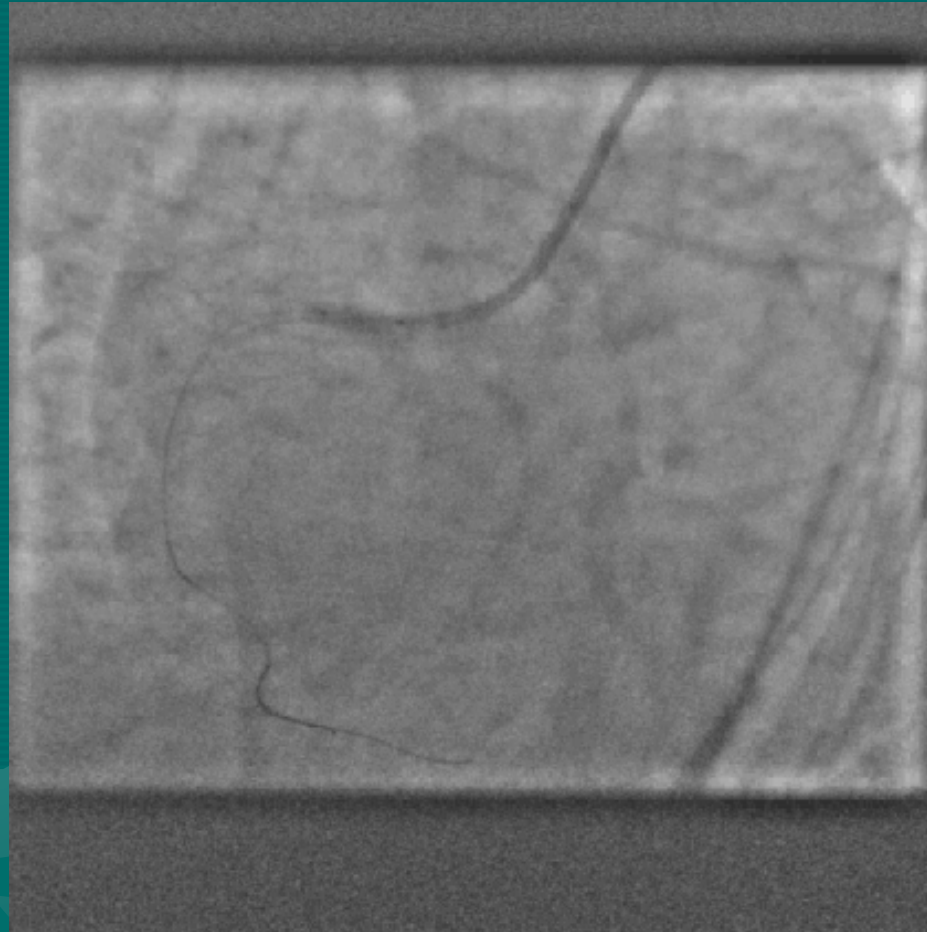
**AND GOT A “NEW YORK” 3.0 NC BALLOON AND PRE DILATED AGAIN  
SERIALLY**



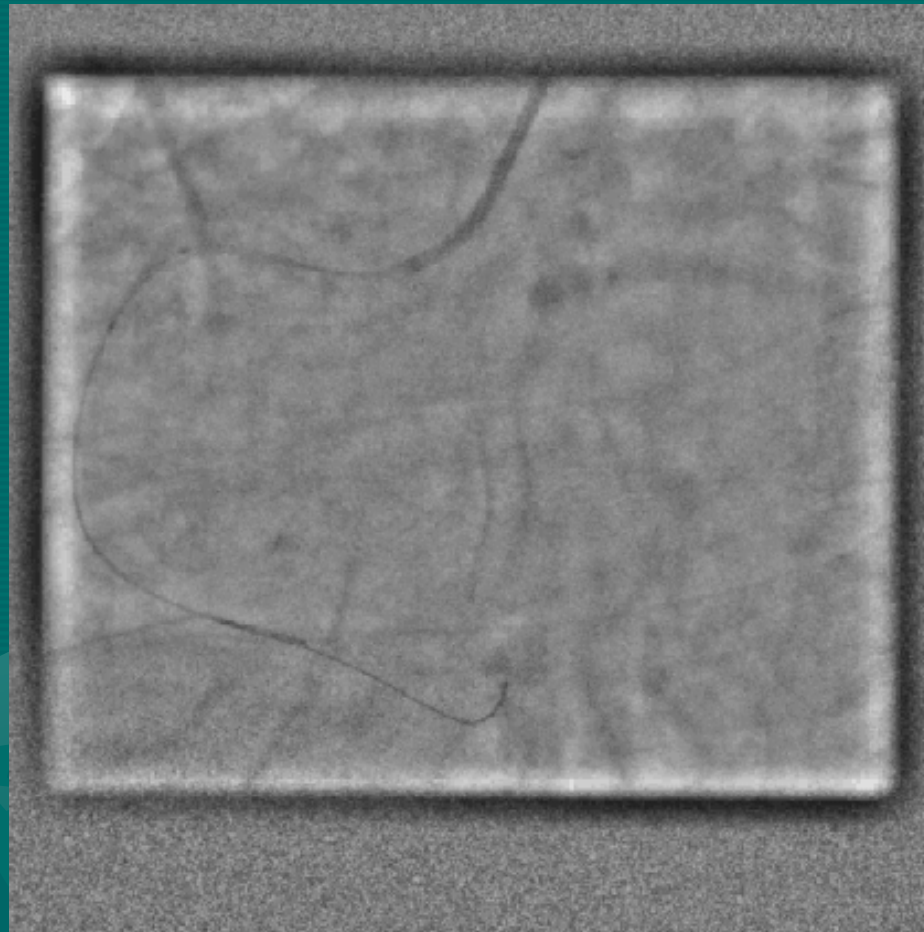
# SERIAL DILATATIONS REPEATED



# OSTIO-PROX SEGMENT

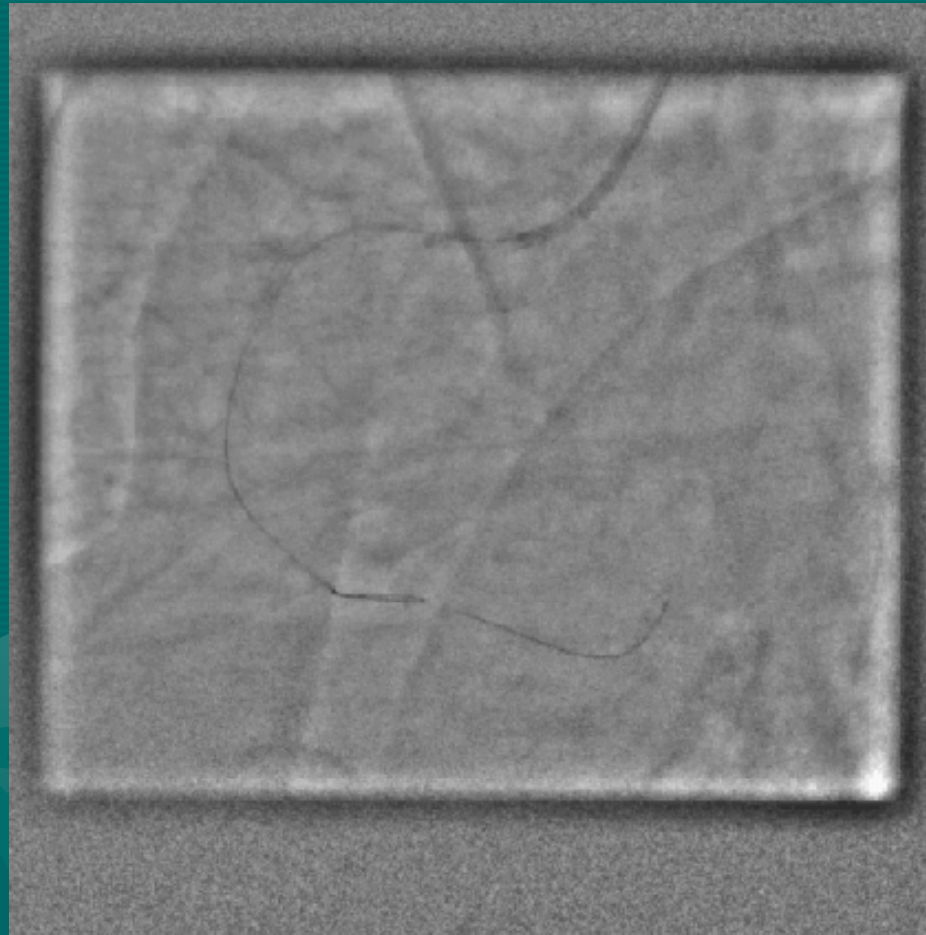


**BUT, HAZINESS STILL PERSISTENT SO AFTER MUCH CONTEMPLATION AND DISCUSSION WITH OTHER COLLEAGUES, DECIDED TO DEPLOY A 2.75 X 12 mm STENT IN THE OVER LAP SEGMENT**

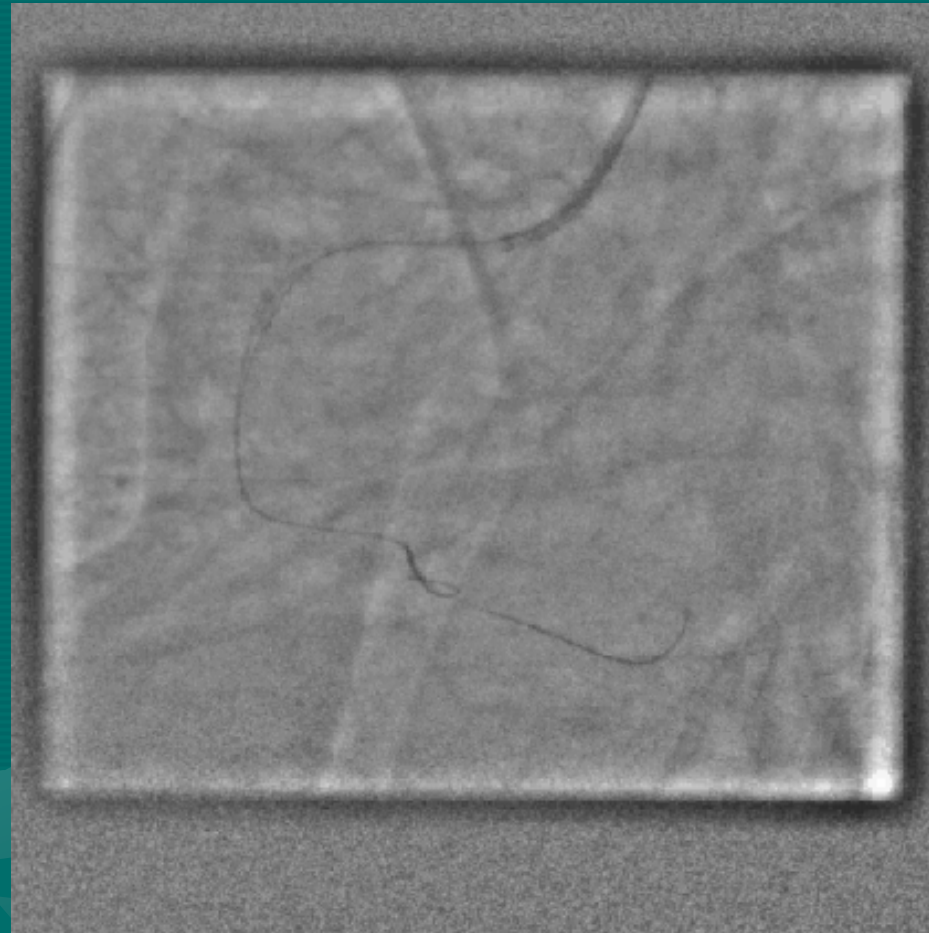




**THE 3.0 NC HAD LOST IT'S PROFILE AND WOULD NOT TRACK,  
AND I COULD NOT GET ANOTHER NEW NC, POST DILATATIONS  
WERE DONE WITH THE STENT BALLOON UNDER HIGH  
PRESSURES**



# FINAL RESULT WITH TIMI III FLOW



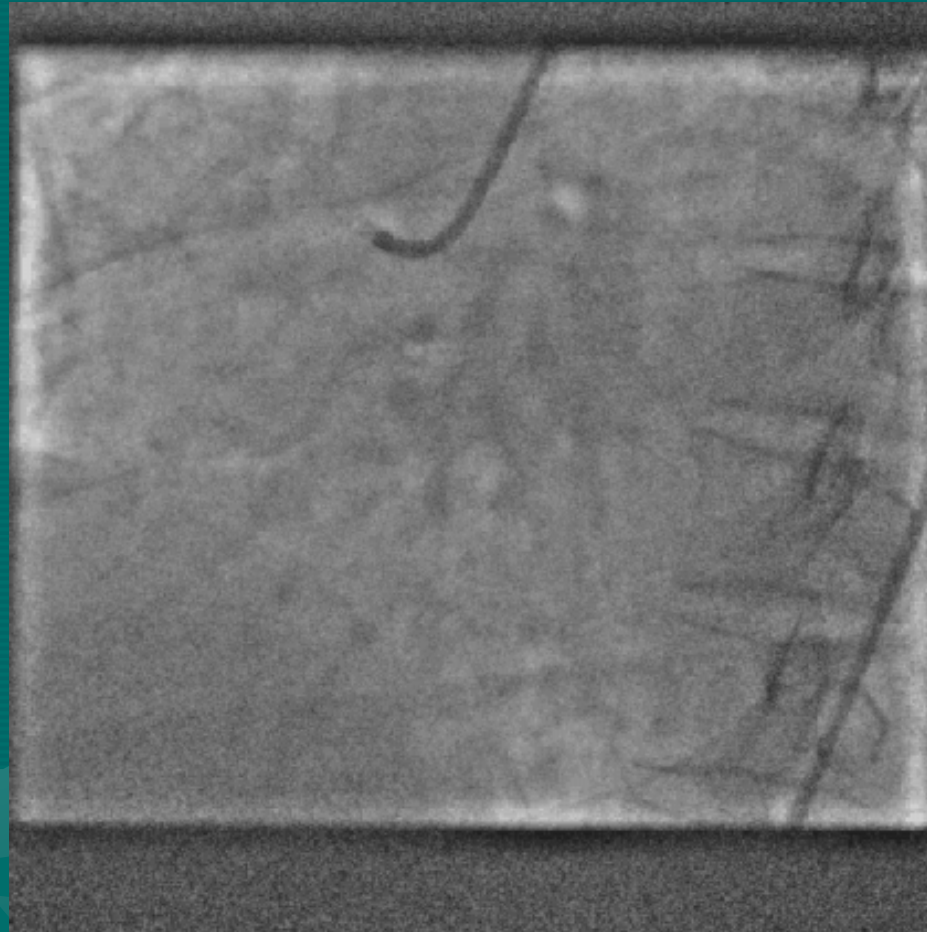
**WITH INDEX PCI ON 28 JAN 2013**

**AND HAVING HAD**

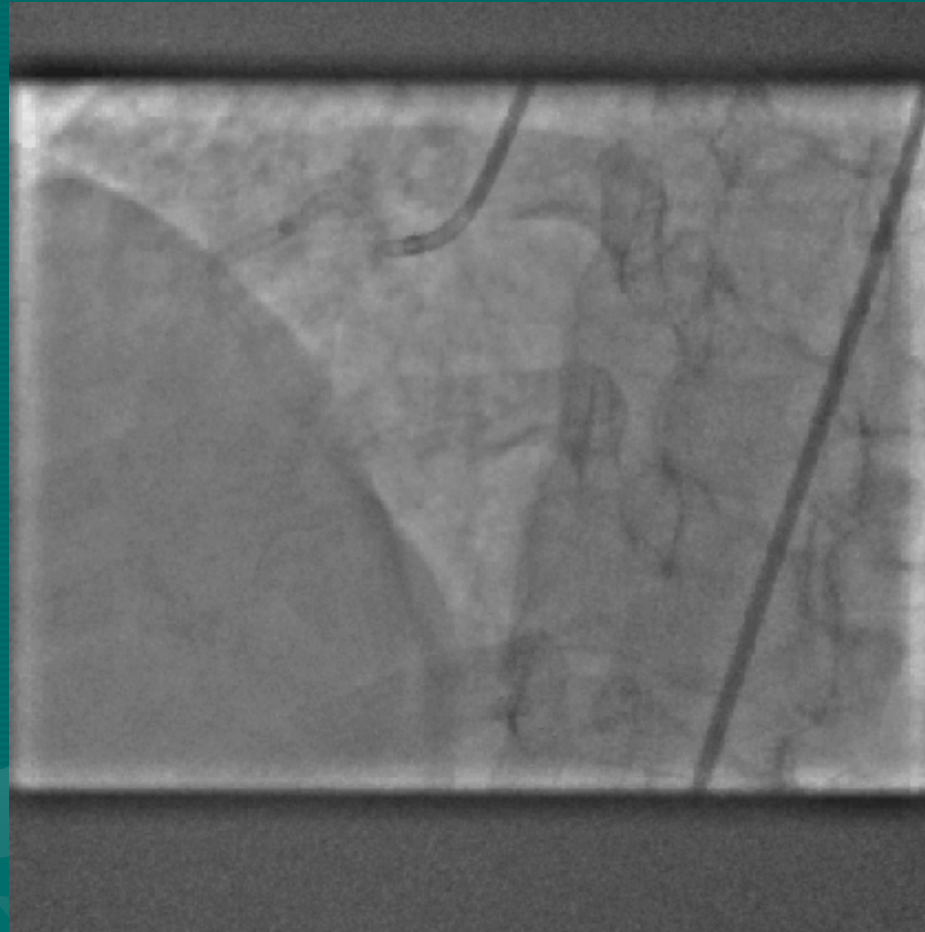
- 1. A SHEPHERD'S CROOK DISSECTION**
- 2. SEVERAL GW, BALLOON PASSES**
- 3. MINOR PERFORATION**
- 4. AND 3 STENTS IN THE VESSEL**

**PATIENT WAS KEPT IN EXTENDED  
OBSERVATION FOR 3 DAYS AND  
DISCHARGED ON 1 ST FEB 2013  
ASYMPTOMATICALLY**

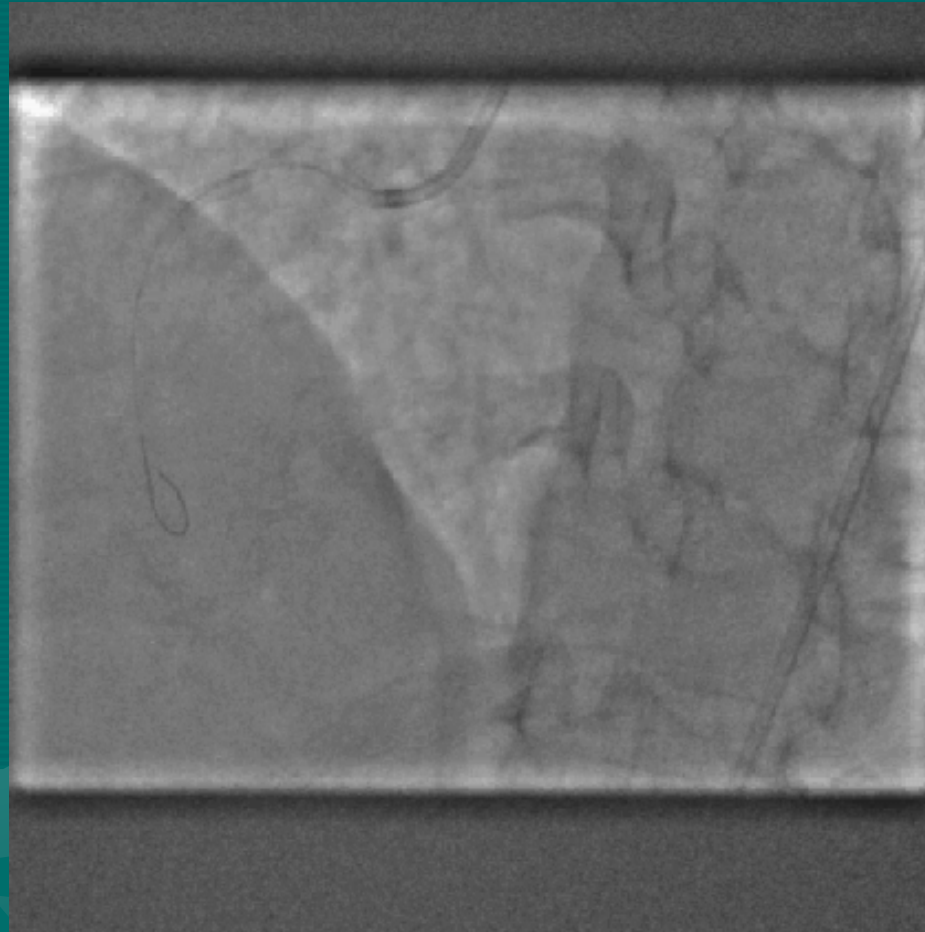
**03 FEB 2013**



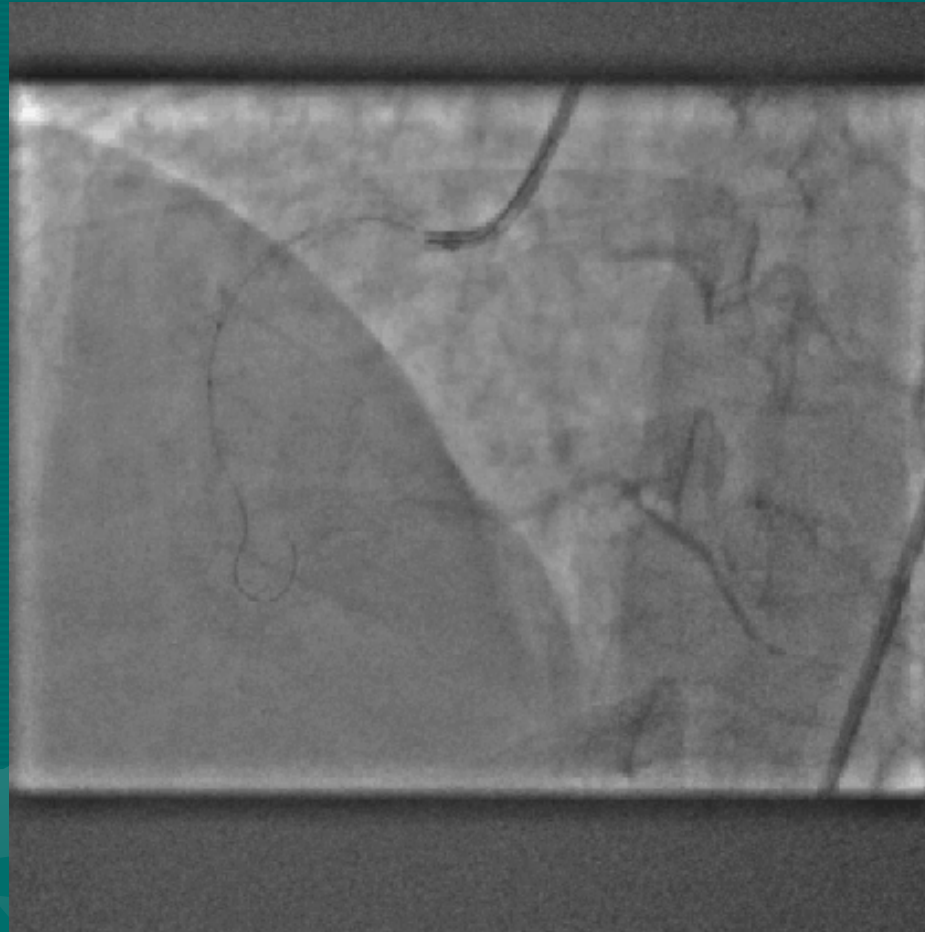
**SAT AT THE LEVEL OF THE 3 RD OVERLAP STENT, BUT THE  
DISSECTION HAD HEALED RATHER WELL FOR 4 DAYS.**



**A "NEW YORK" WIRE WAS POSITIONED WITH CARE TO AVOID INTRA  
STRUT PASSAGE AND GP II b III a BOLUS AND INFUSION STARTED**



**A NEW YORK 3.0 NC PASSED DISTALLY AND SERIAL  
PREDILATATIONS DONE.**

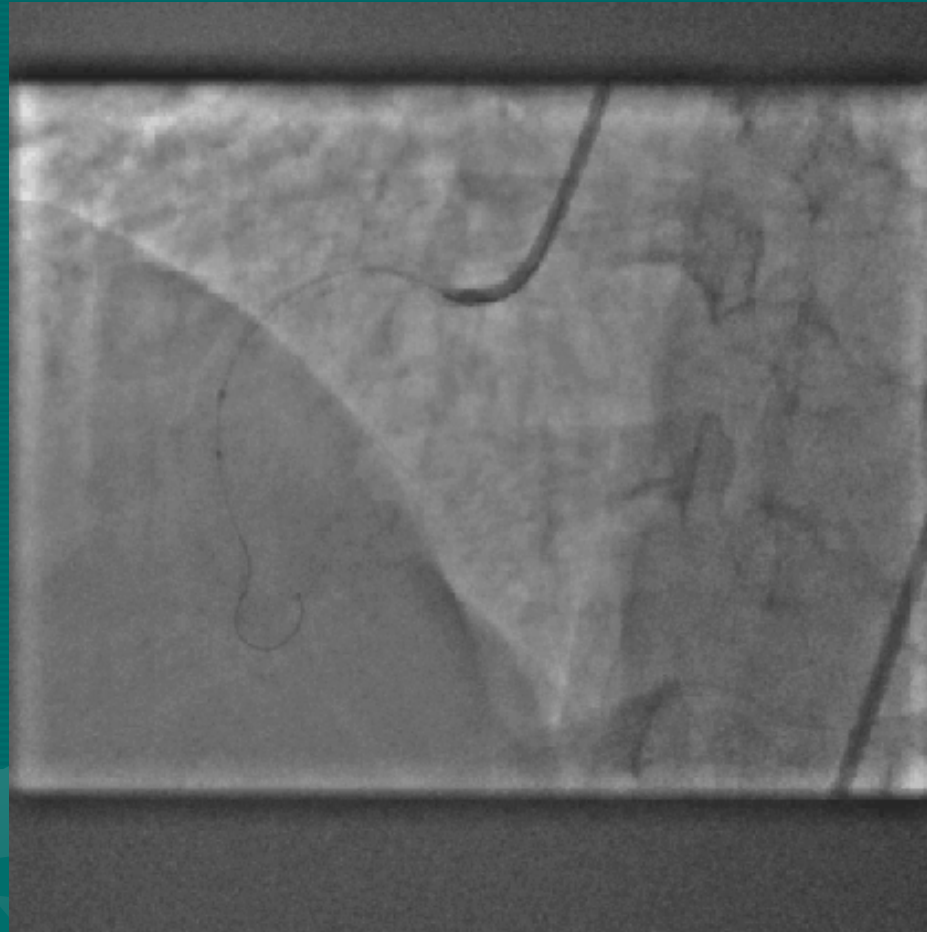


## AT SITE OF LESION

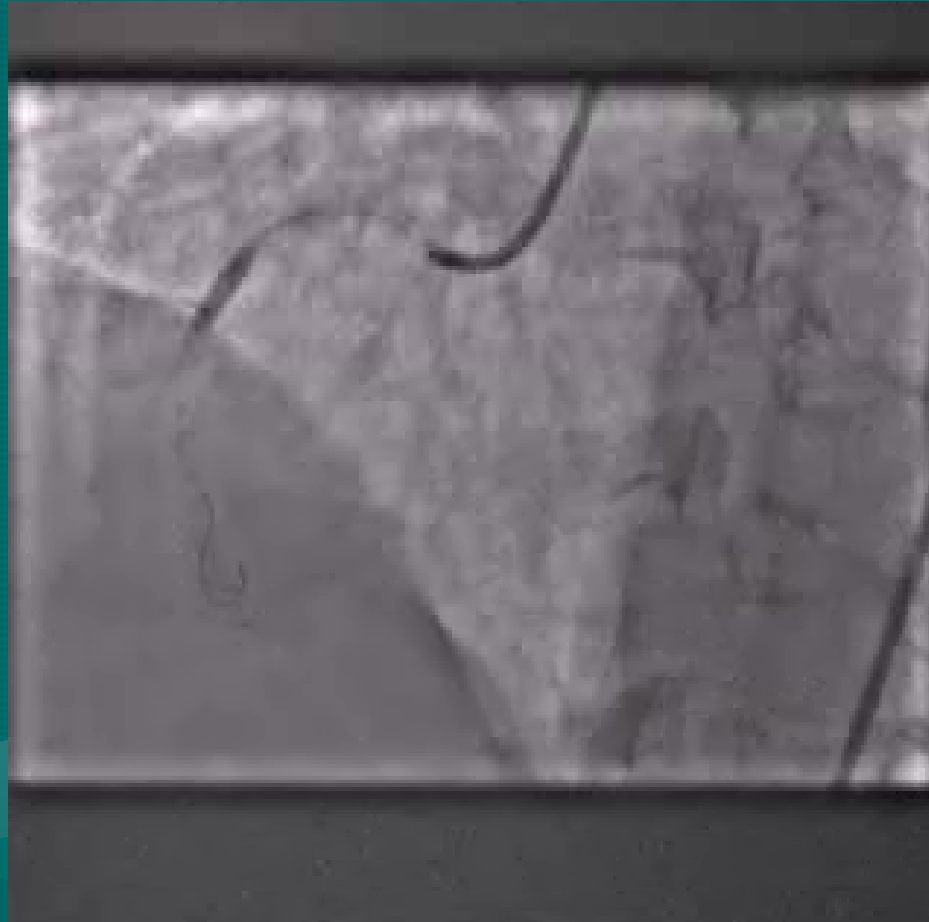




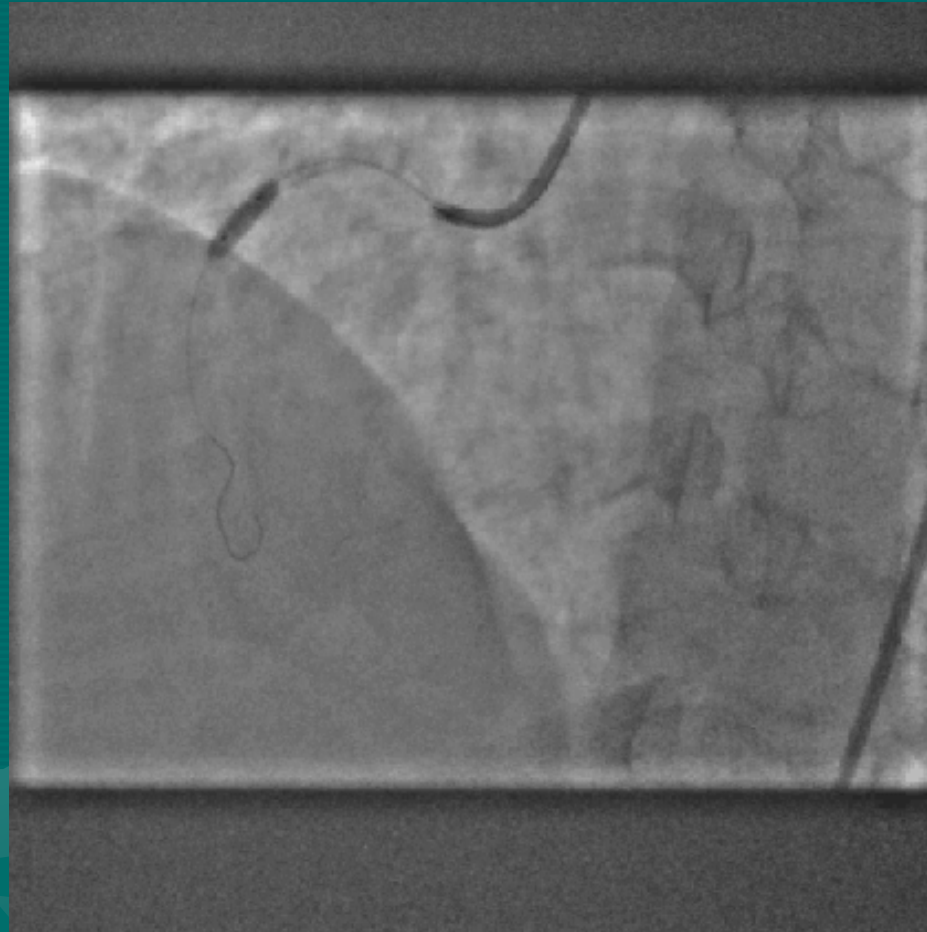
**DISTALLY**



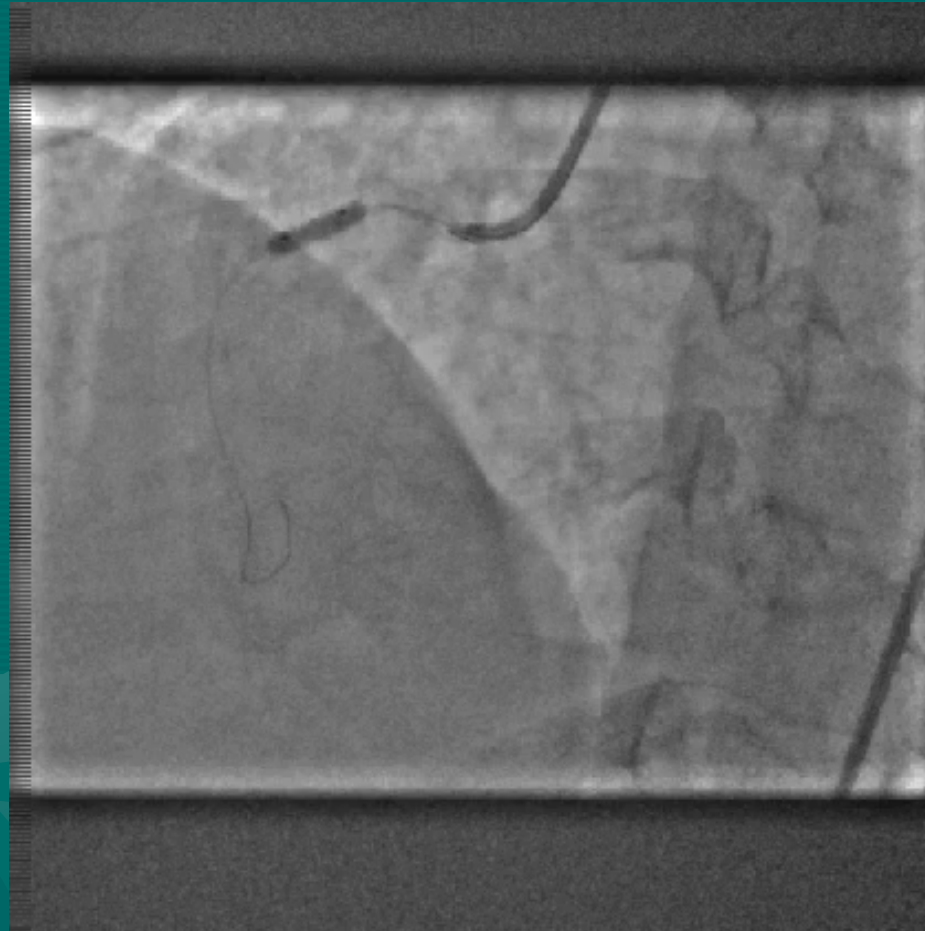
# MID SEGMENT



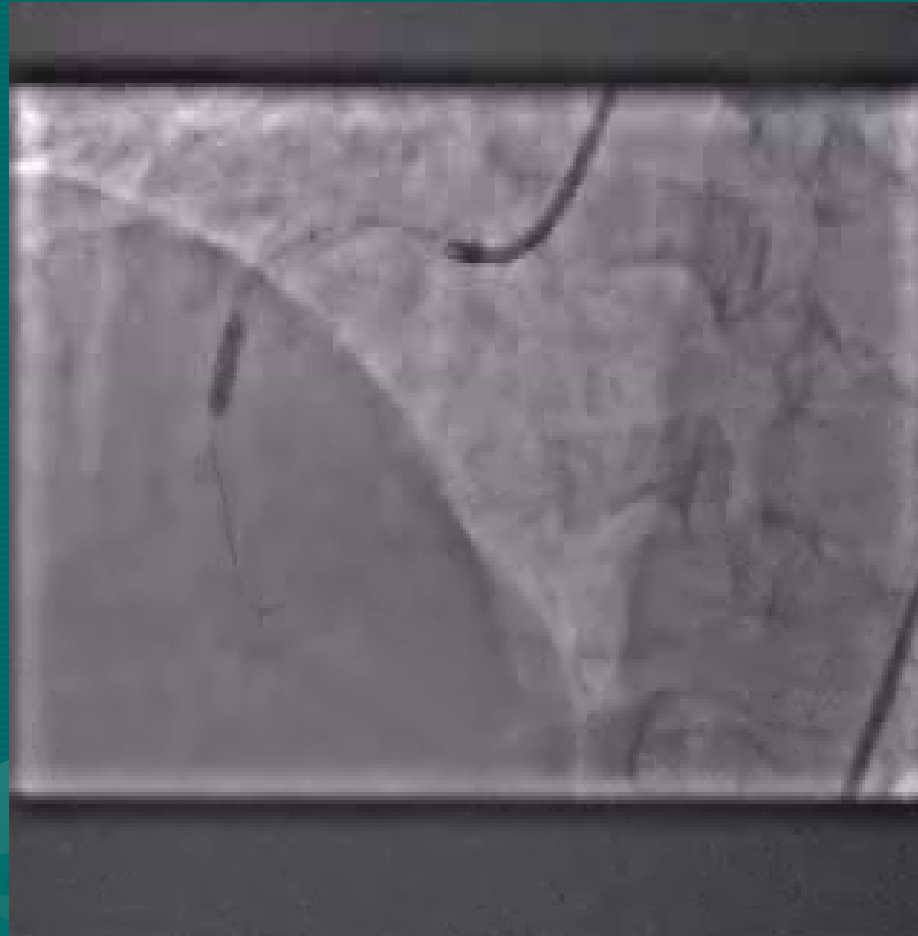
# PROXIMALLY



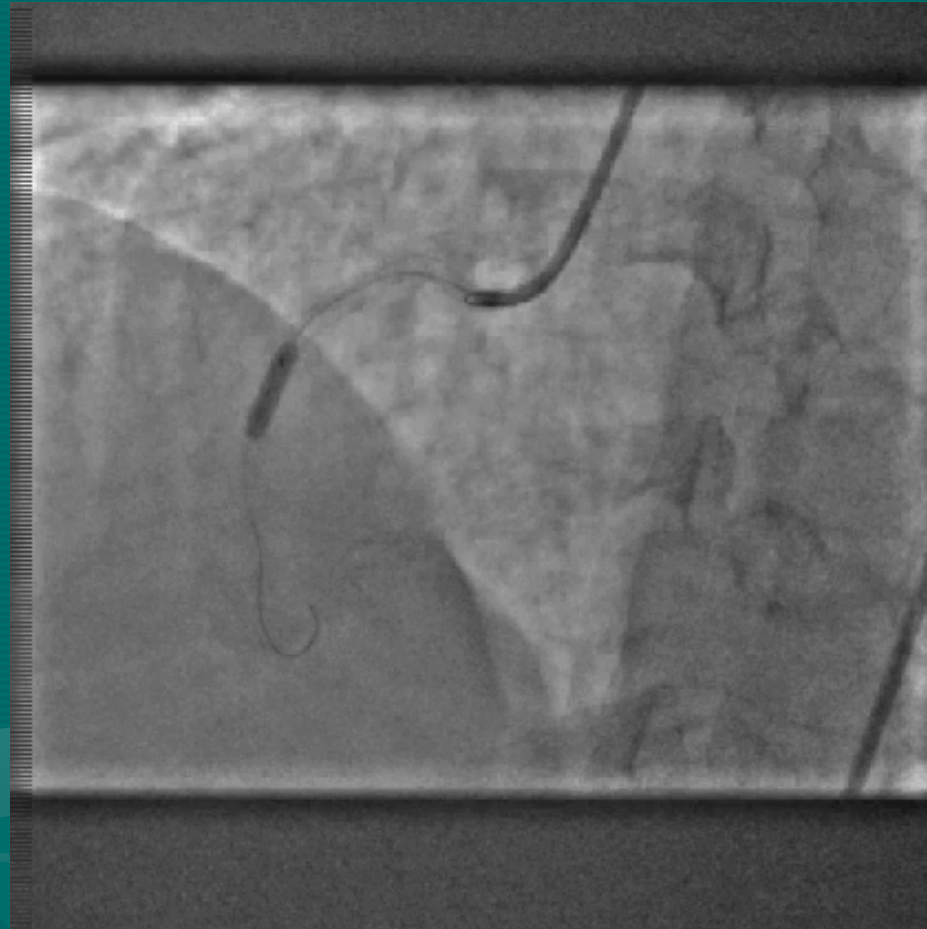
**THEREAFTER STEPPED UP TO 3.5 NC BALLOON WITH SERIAL DILATATIONS**



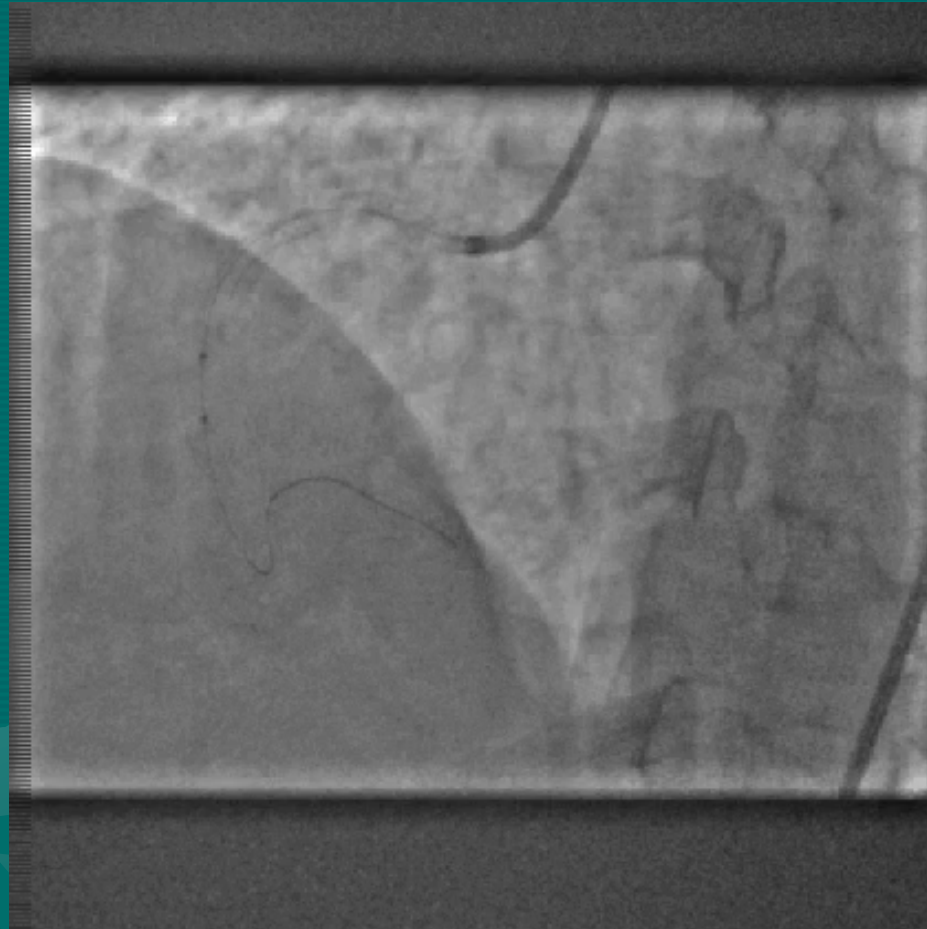
# MID SEGMENT



**DISTALLY**



**WITH THE FINAL RESULT ENDING THE ORDEAL**



**28 JAN 2013: INDEX PROCEDURE**

**03 FEB 2013: SAT**

**04 MAR 2013: HE UNDERWENT HIS FIRST MONTH FOLLOW UP**

**05 APR 2013: HE CAME FOR HIS 2 ND MONTH FOLLOW UP WITH:**

**TMT NEGATIVE AT > 10 METS WITH NO RWMA ON ECHO.**