# TRI for CTO lesions

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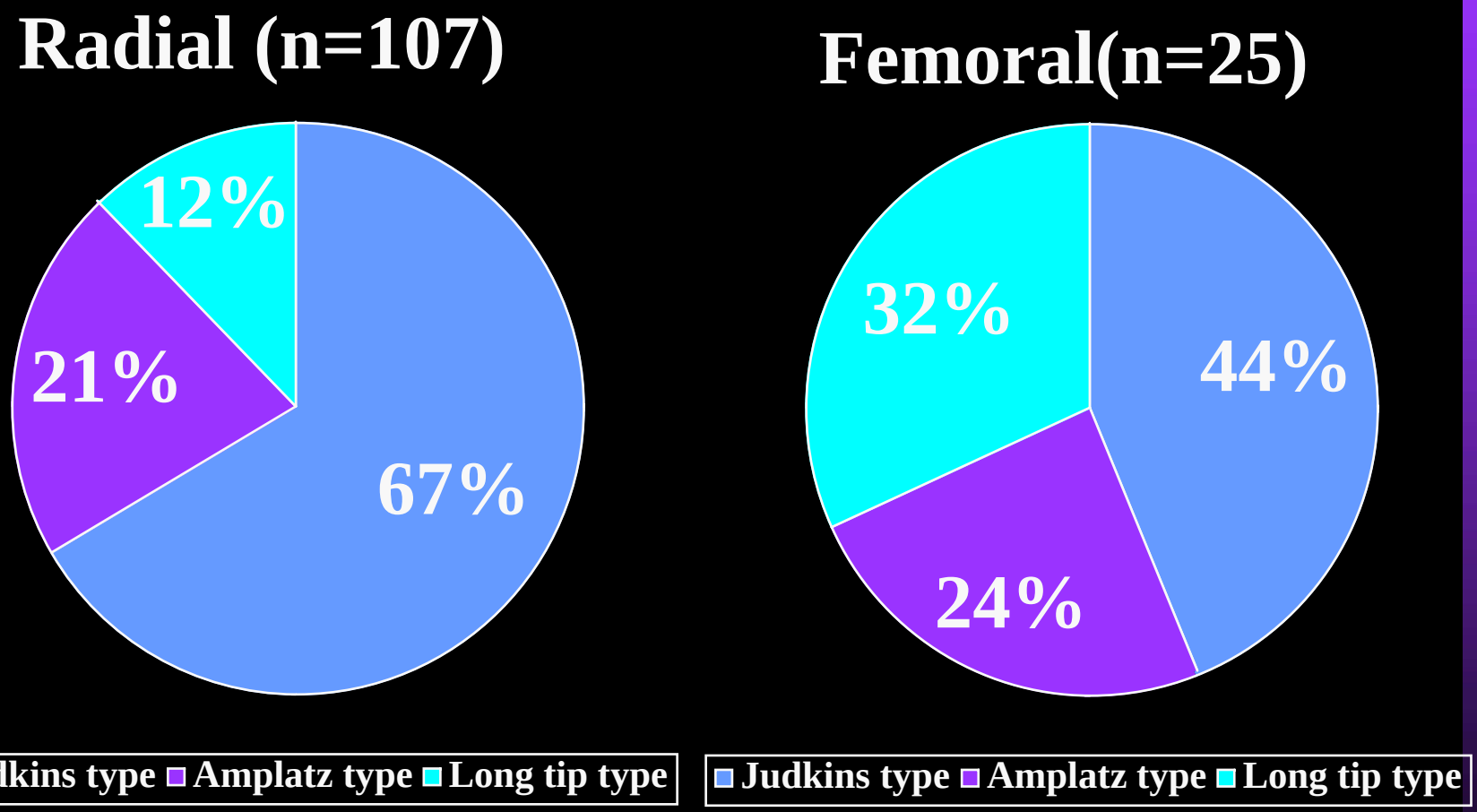
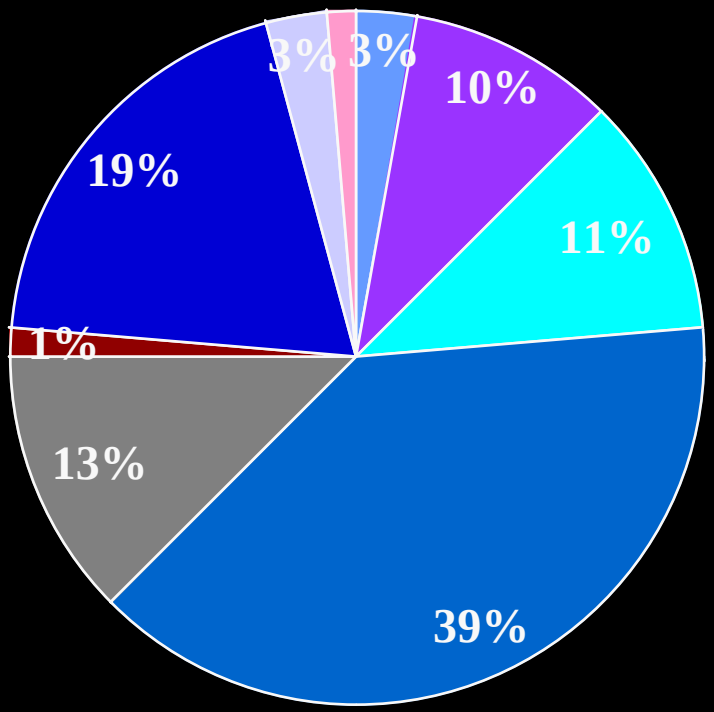
# Guide catheter(radial *vs.* femoral)



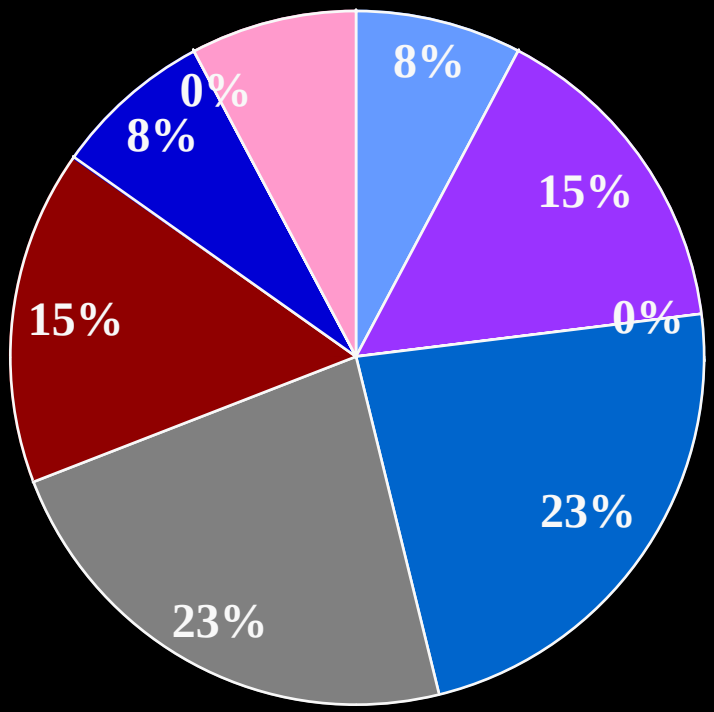
# Guide wire (radial *vs.* femoral)

## Radial(n=75)




HT BMW
Whisper MS
choice pt pluse
Neo's miracle3g
Neo's conquest
Neo's conquest pro
Cross it 100XT
Cross it 200X
oterhs

## Femoral(n=13)




HT BMW
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# Initial Success

Over all(n=119)71.4%
Radial(n=85)74.1%
Brachial(n=16)68.8%
Femoral(n=18)61.1%

**Reason of failure**

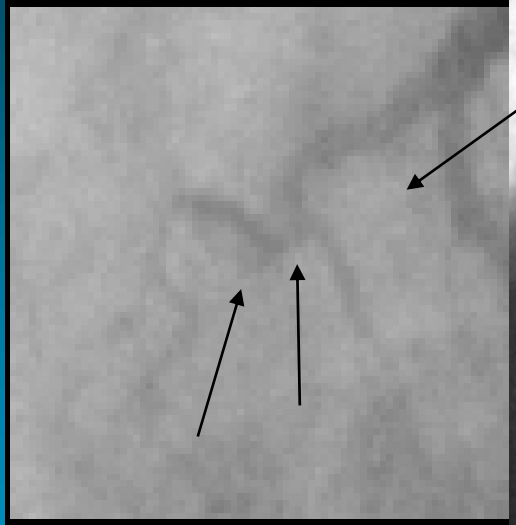
| | Wire not pass | Ba. not pass |
|---|---|---|
| Radial(n=34) | 14(63.6%) | 8(36.4%) |
| Brachial(n=5) | 4(80%) | 1(20%) |
| Femoral(n=11) | 6(85.7%) | 1(14.3%) |

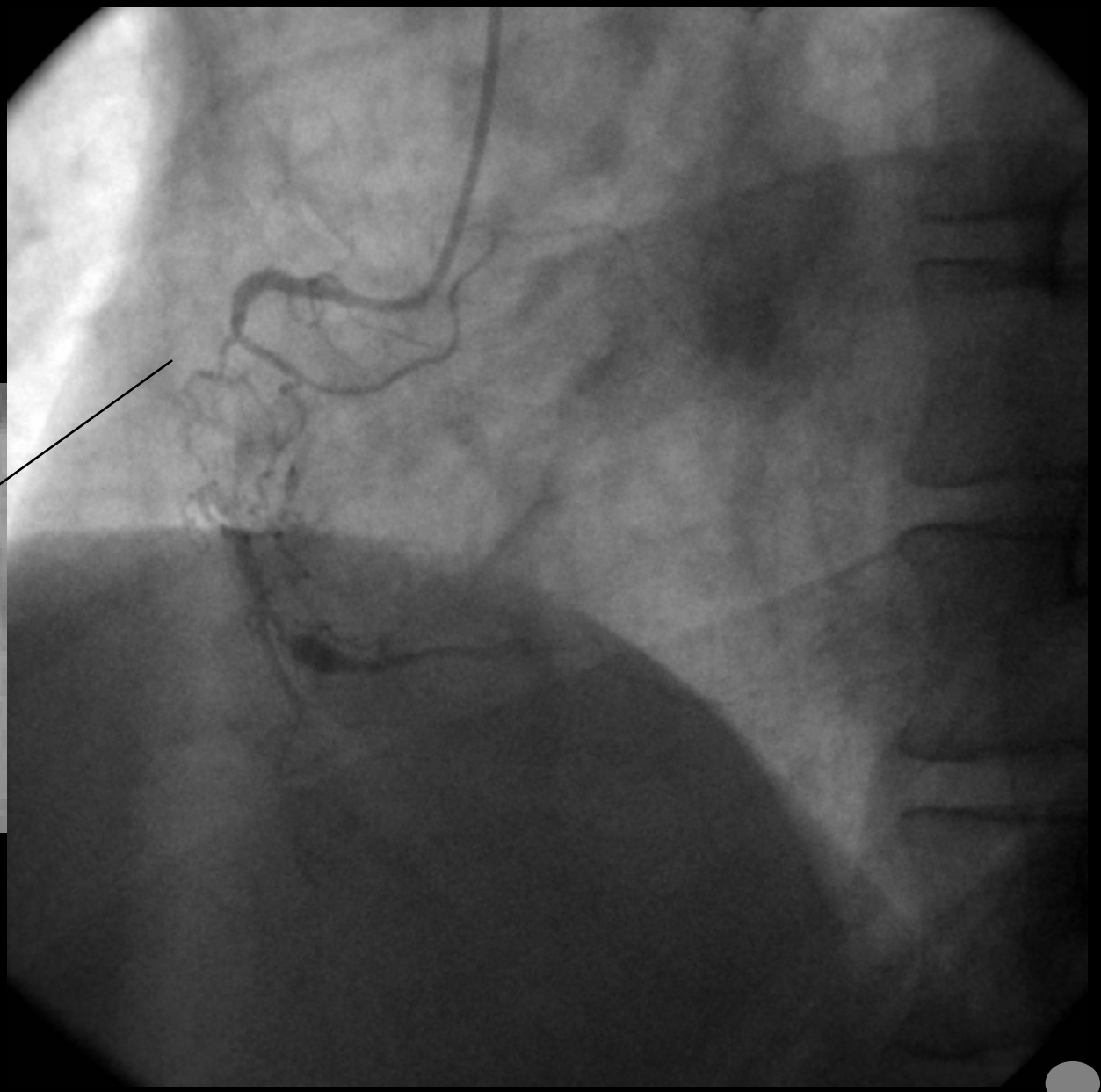
## The technique which is necessary to do TRI for CTO lesions

### 1.Interpretation of images of lesions

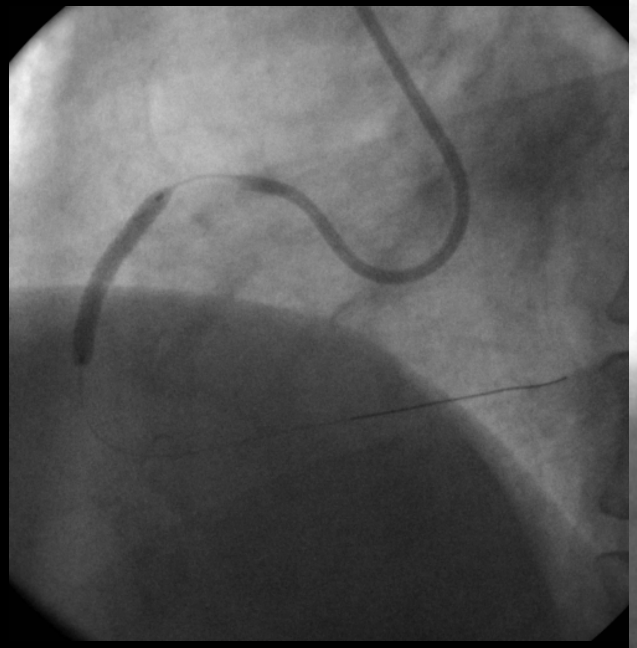
Because the presence of a dimple at the central side has an influence on the success of an intervention, each image of the lesion should be observed very carefully from various angles. If the correct entry is found, various techniques can be used for a successful intervention. If the entry to the CTO is not located, all efforts may end in failure.

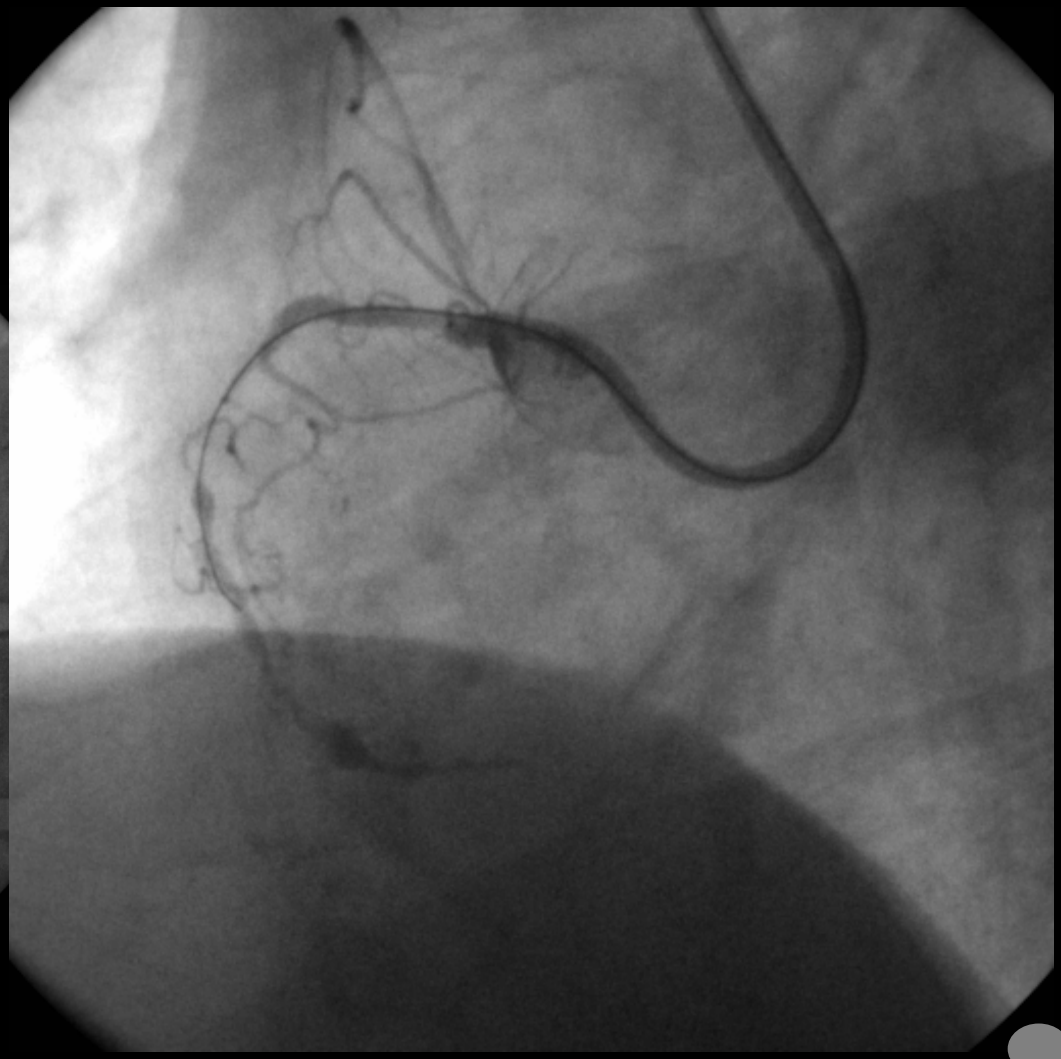
# Case1-1



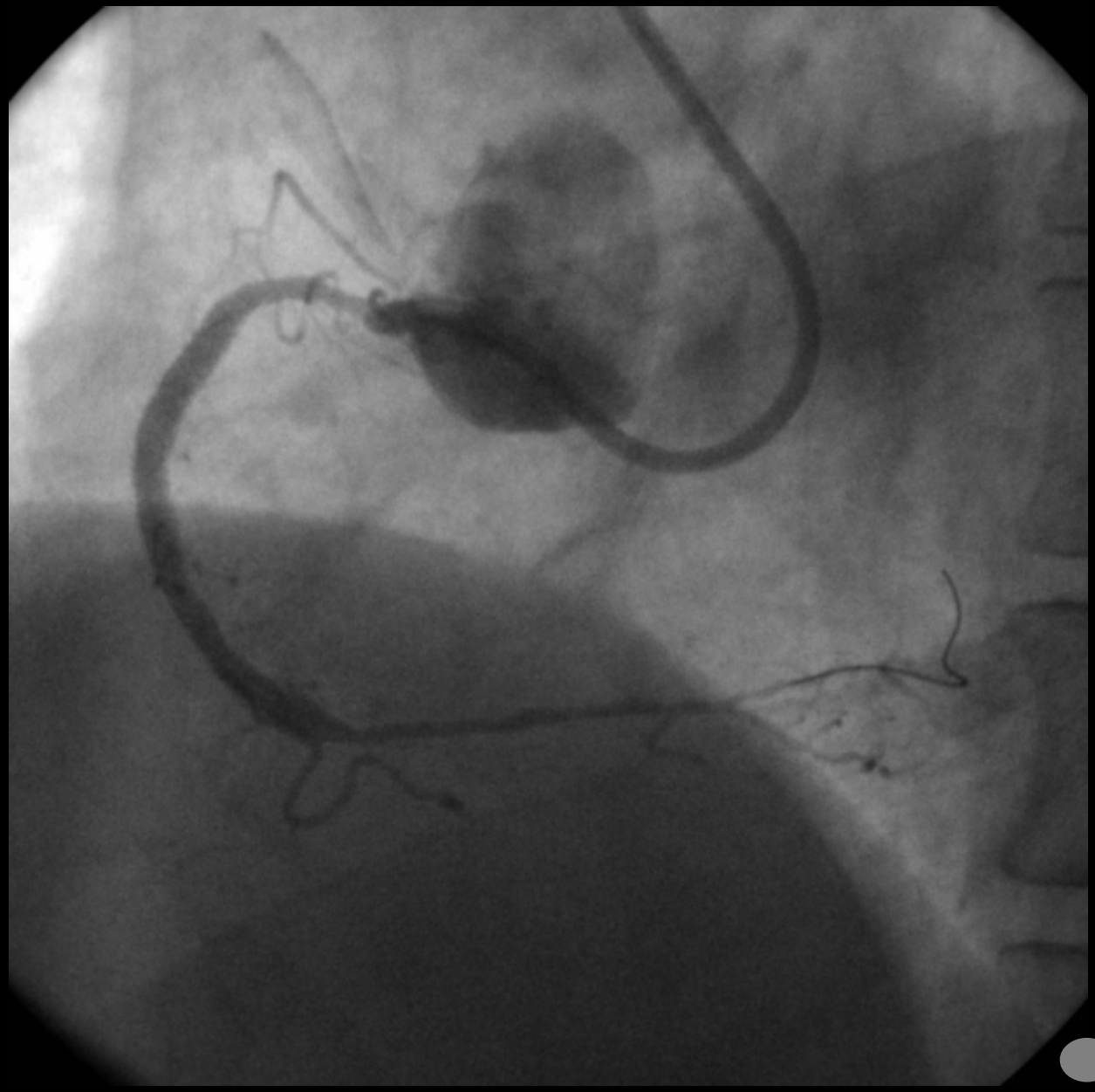


# Case1-2





# Case1-3



## 2.deep engagement

We can’t expect the backup power of a 5 and 6Fr guide catheter to be the same as an 8Fr guide catheter. When a balloon and stent will not pass a lesion, we push the guide catheter deep into the coronary artery and are able to get strong backup power. This technique is very important for TRI.

# Case2-1

Case:K.A.Age:65y.o.Gender:F
Clinical diagnosis:AMI
Clinical course:2002.2.17.AMI
2002.2.17.CAG; RCA(3)100%, LAD(7) 99% with delay
Coronary risk factor: HT, HL

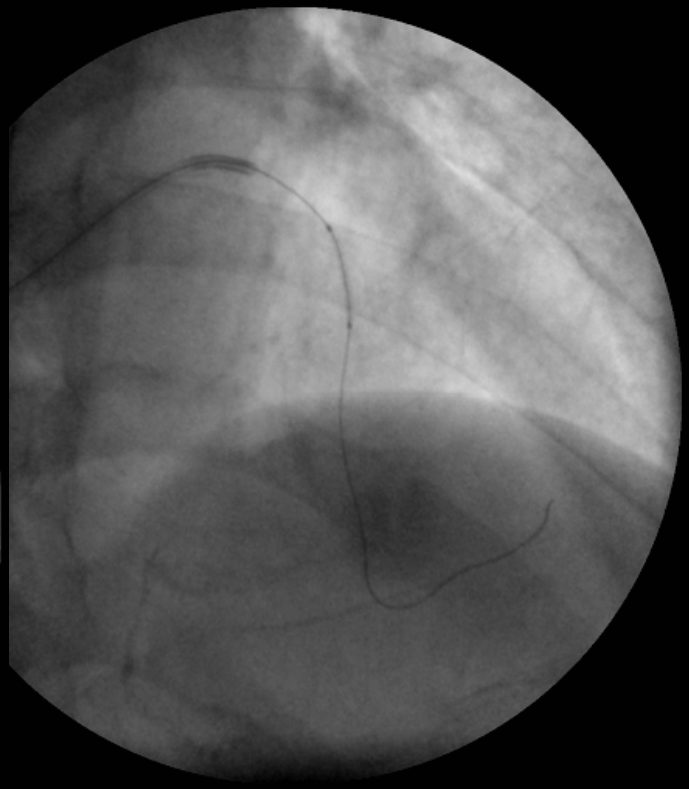
Device(LAD)
Approach site:radial(rt)
GC:Guider JL3.5(6Fr)
GW:Neo's miracle 3.0g
Ba: Maestro 2.5×14mm
Stent:MULTI-LINK TRISTAR 2.75×18mm

# Case2-2

# Case2-3

103

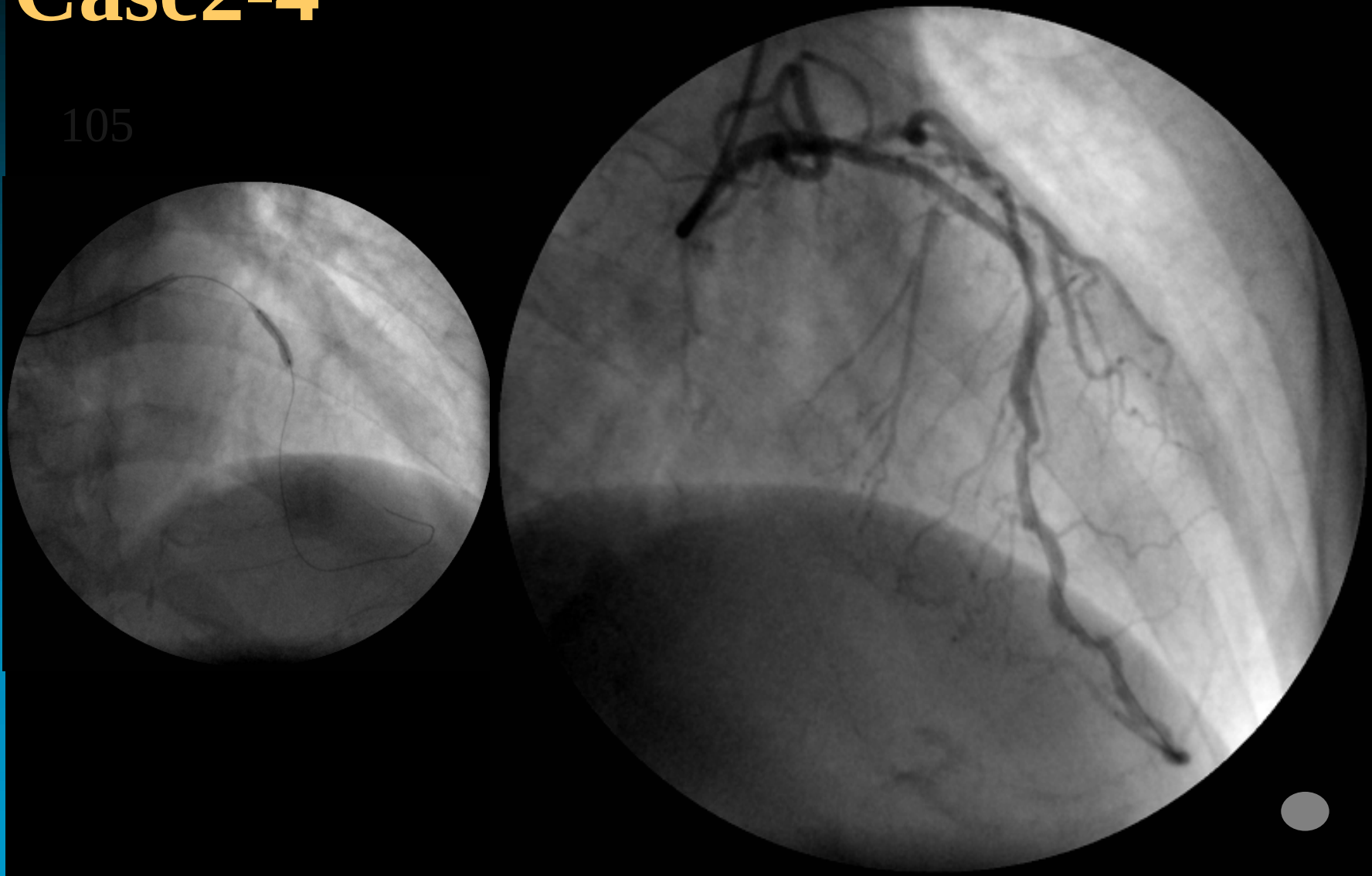
104



Stent:MULTI-LINK TRISTAR 2.75×18mm

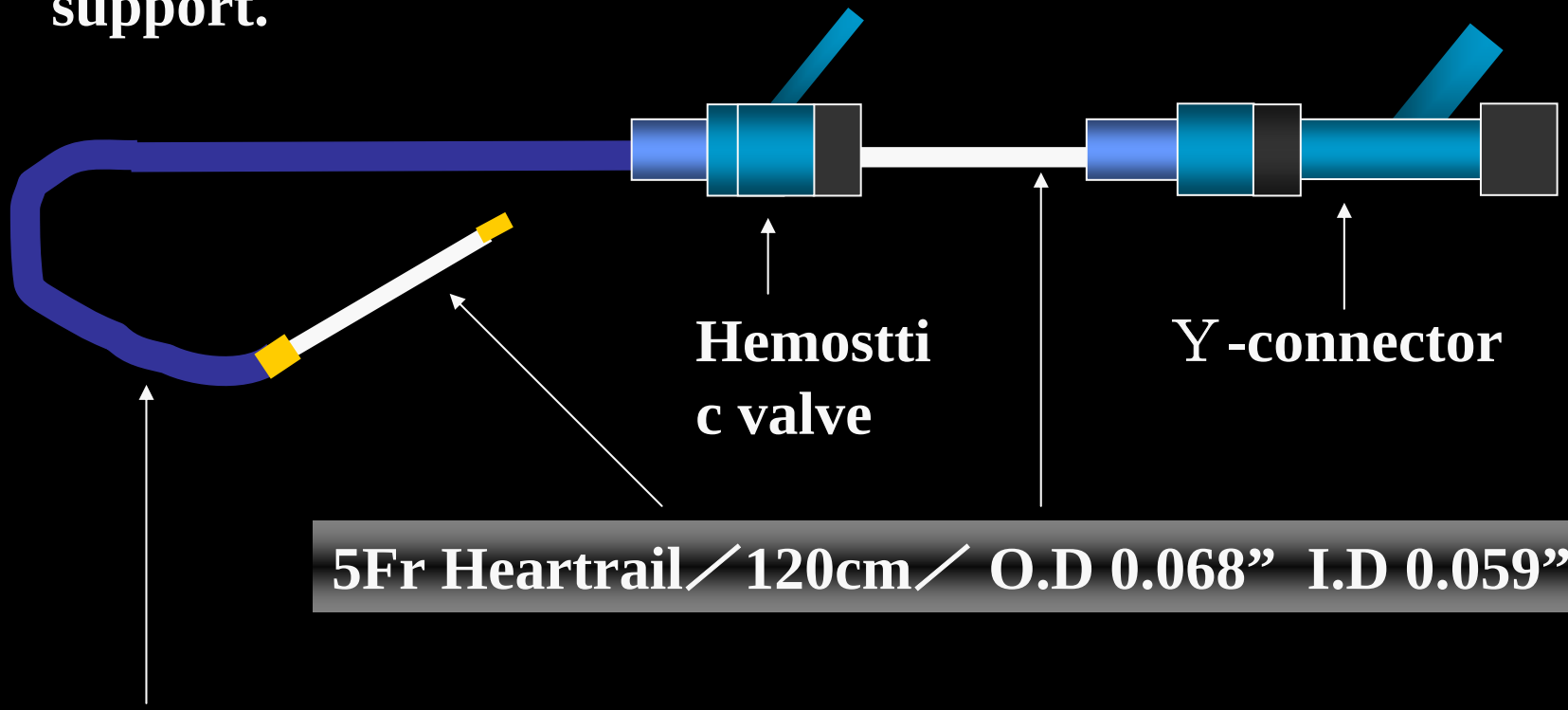
# Case2-4





# 3.5in 6Fr guide catheter

We can pass a 5Fr guiding catheter through the 6Fr guiding catheter. This guiding system can increase back-up support.

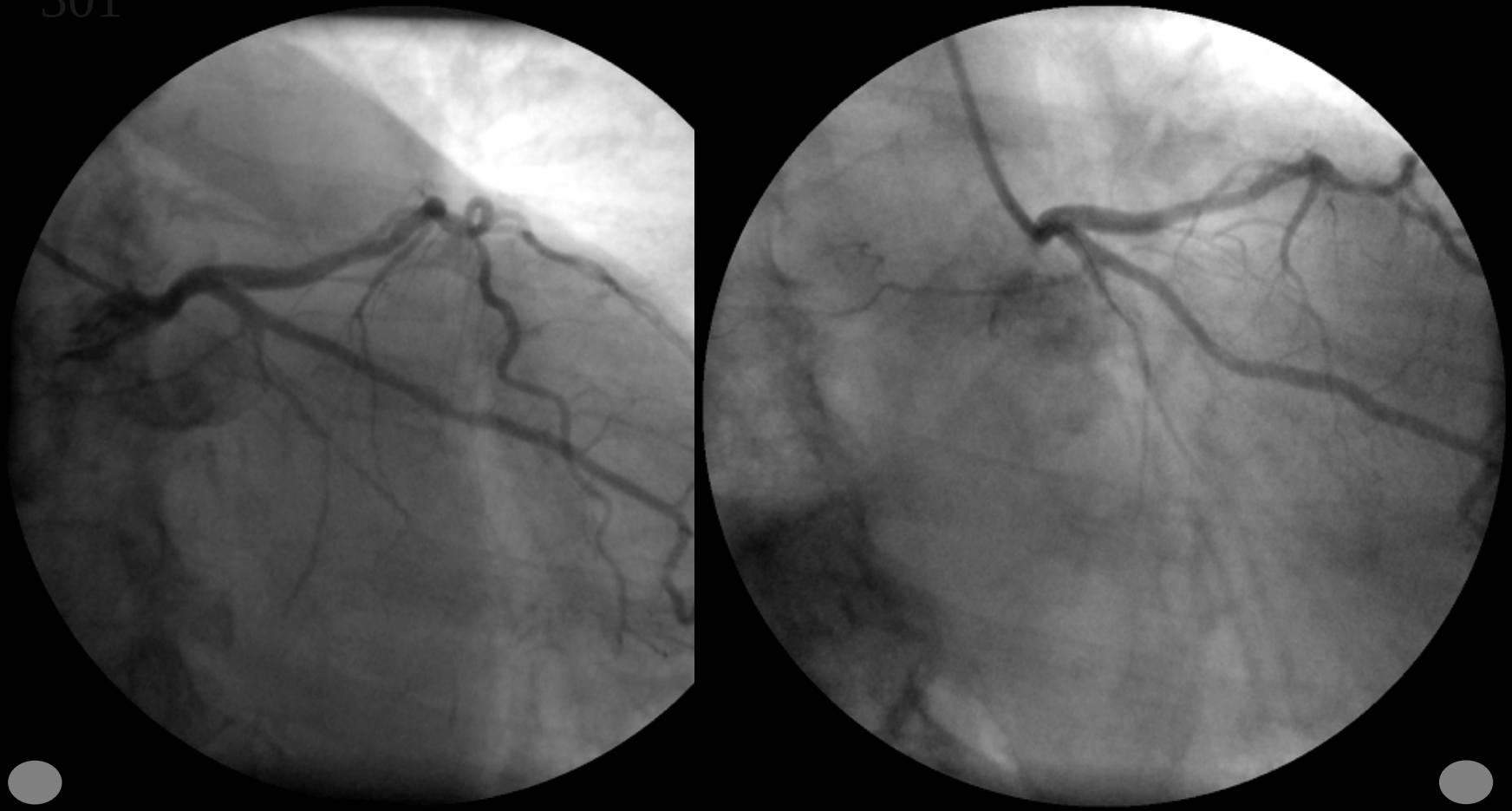


# Case3-1

Case:S.K.Age:73y.o.Gender:M
Clinical diagnosis:PIA
Clinical course:2003.5.6.chest pain,CPK 1615
2003.5.6.CAG;RCA(1) 99%, LCC(13) CTO
2003.5.13.;RCA(1) MULTI-LINK PENTA 3.5×23mm
Coronary risk factor: DM,HT

Device
Approach site:radial(rt)
GC:Launcher SL3.5(6Fr), Heartrail(5Fr)
GW:ACS HT-WisperMS,Neo's miracle3g
Ba: Ryujin 1.25×10mm, Cross sail 1.5×10mm,
Stomer 2.25×10mm

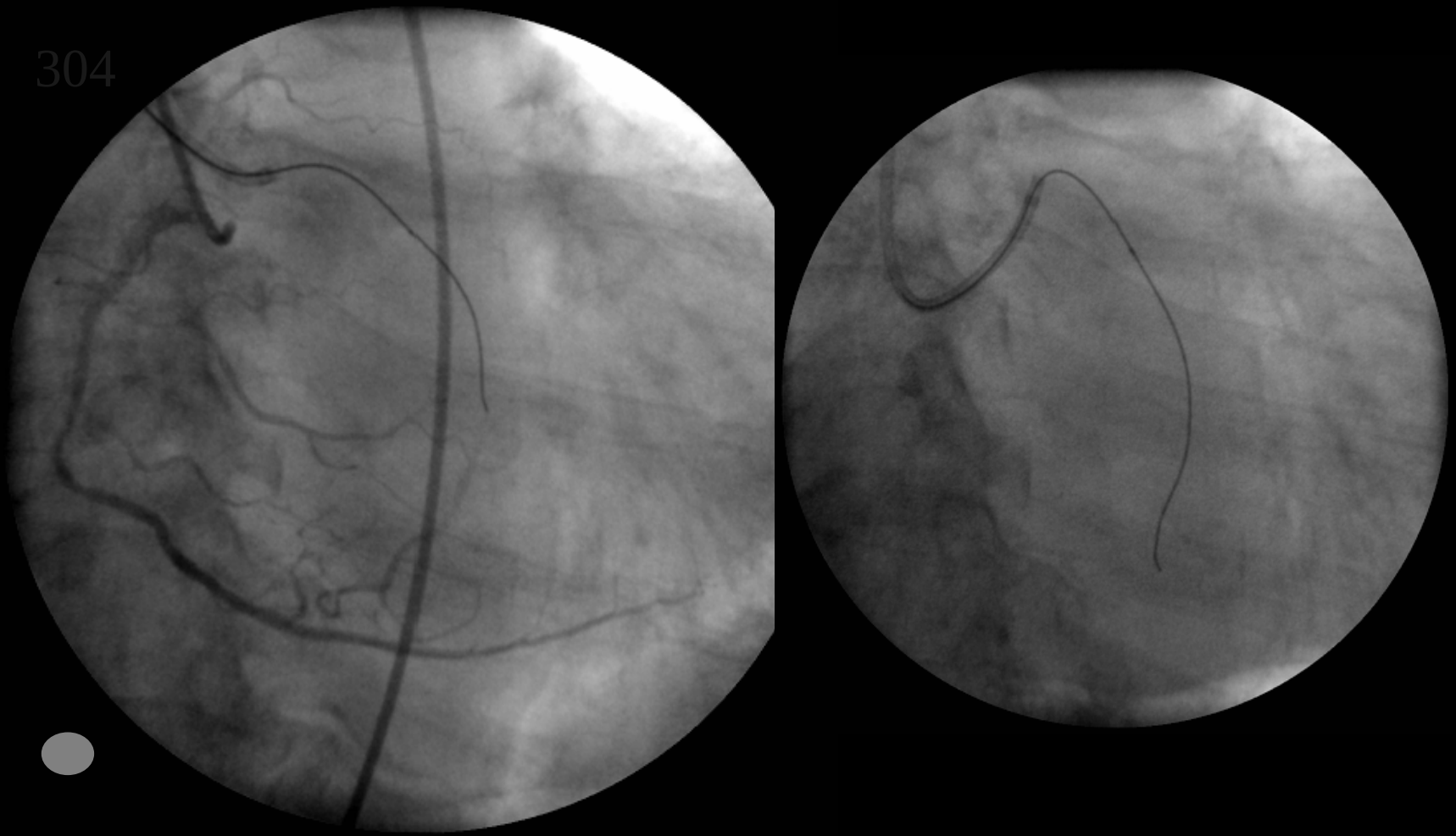
# Case3-2



Launcher SL3.5(6Fr)
ACS HT-Whisper MS,Neo's miracle3g

# Case3-3

304



Heartrail(5Fr)
Ryujin 1.25×10mm, Cross sail 1.5×10mm,

# Case3-4

## 4. buddy wire technique

When it is difficult to engage a guide catheter and fix it, we use the buddy wire technique. We first cross a guide wire into the branch, with which we can easily cross the coronary artery lesion and fix a guide catheter. We cross the lesion with one more guide wire.

# Case4-1

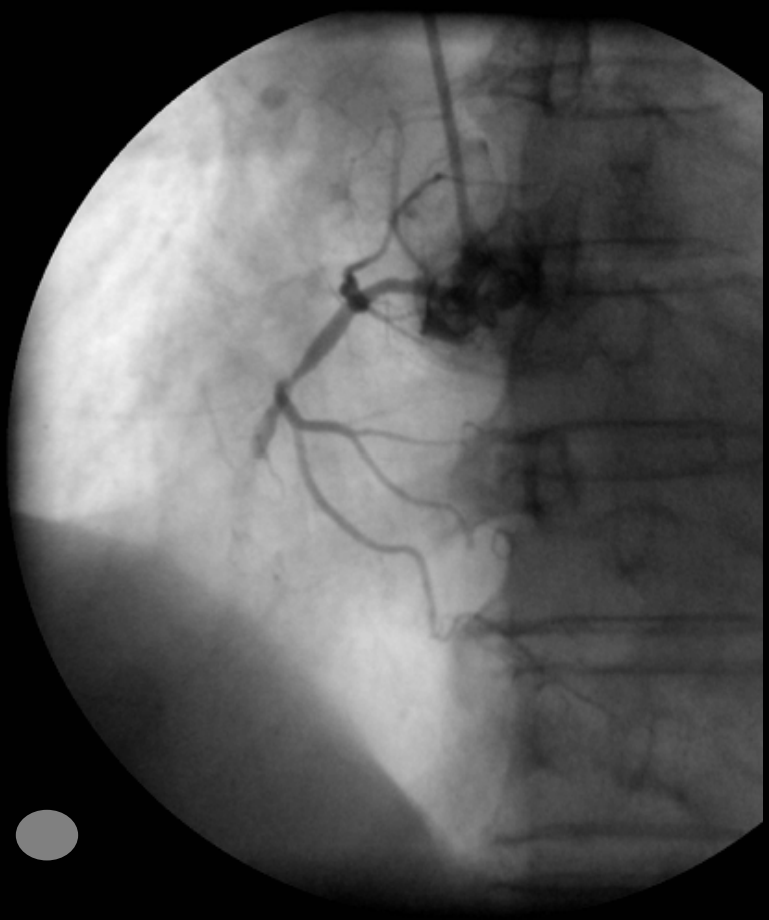
Case:T.I.Age:62y.o.Gender:F
Clinical diagnosis:AP
Clinical course:2002.10.～effort angina
2003.6.10.CAG
Coronary risk factor: HT, HL

CAG:2003.6.10.
LMT:
RCA:(2) 100%
Collateral LCA→RCA
LAD:(6) 25%
LCX:(13) 75%

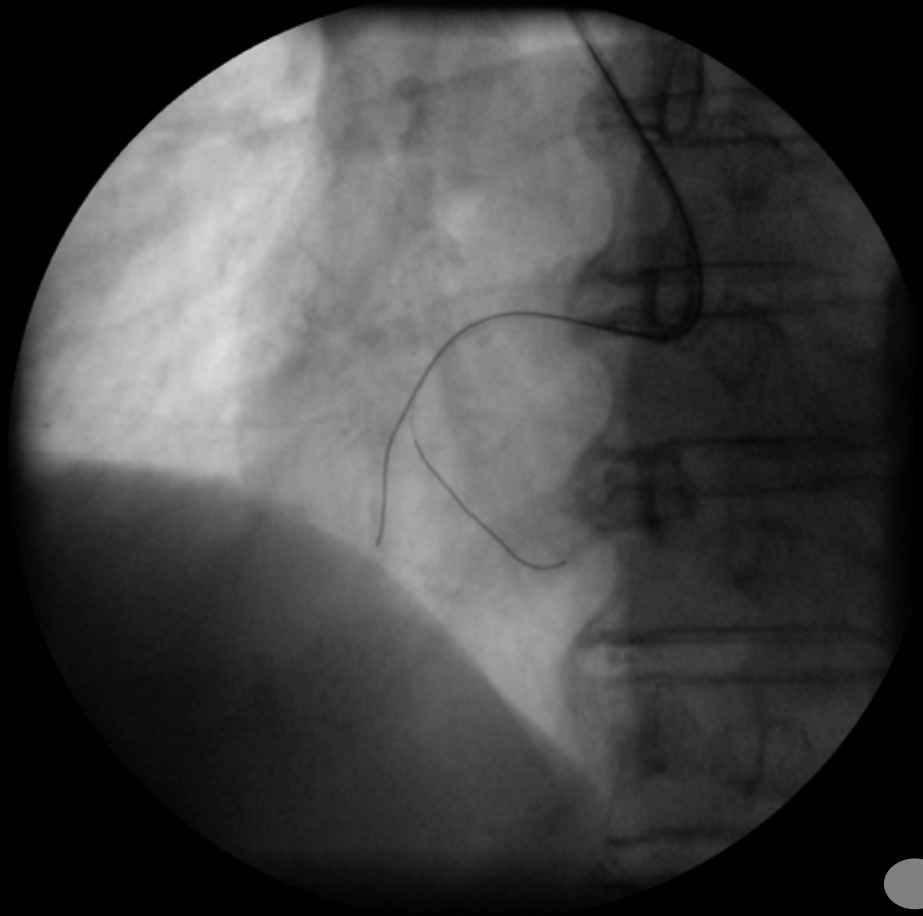
Device
Approach site:radial(rt)
GC:ZumaII SAL1.0(6Fr)
GW:Neo's miracle 3g,
HT-balance, Neo's conquest
Ba: Cross sail 1.5×10mm
HAYATE pro 2.5×20mm

# Case4-2

501

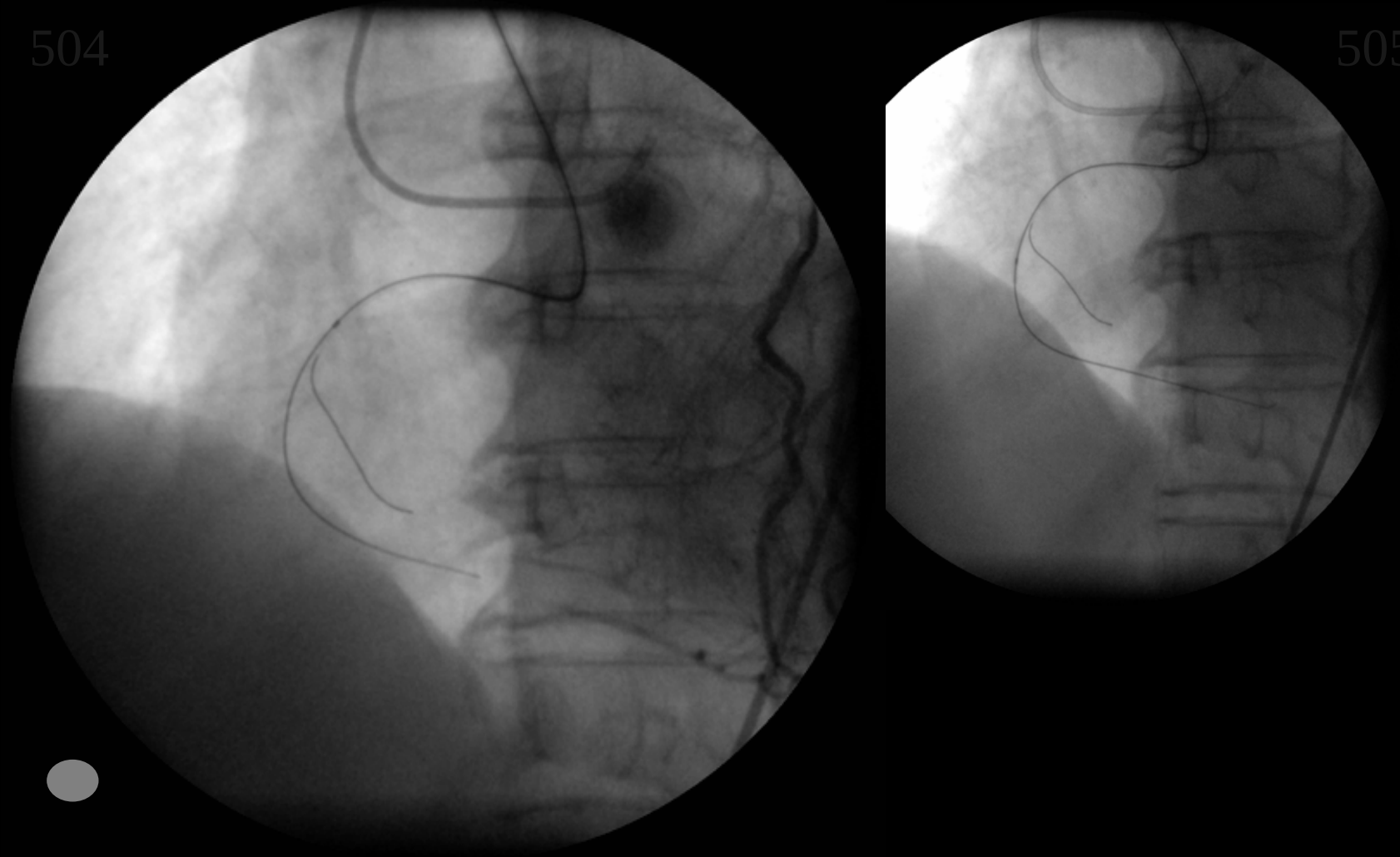


502



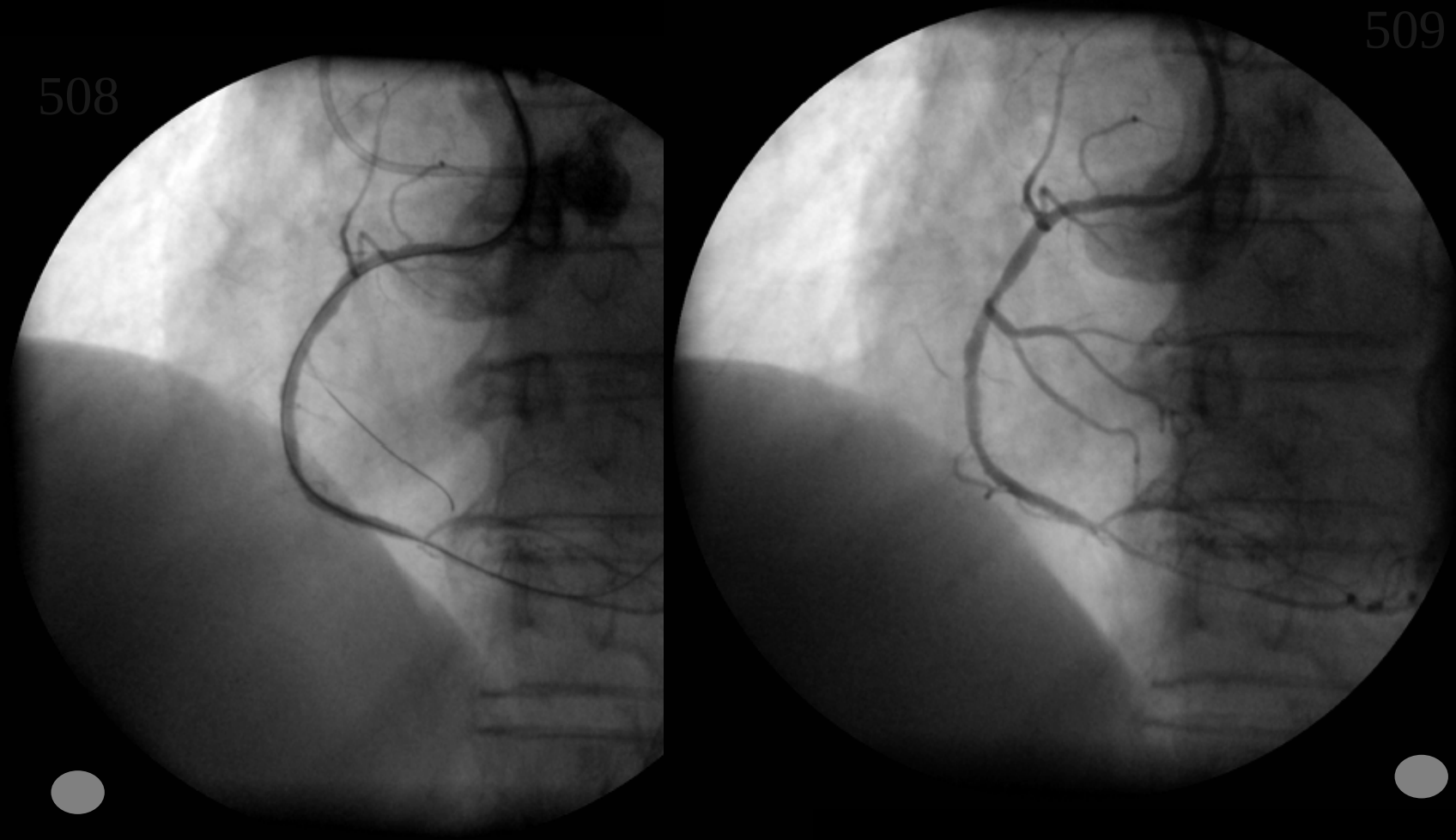
ZumaII SAL1.0(6Fr)
Neo's miracle 3g,HT-balance

# Case4-3

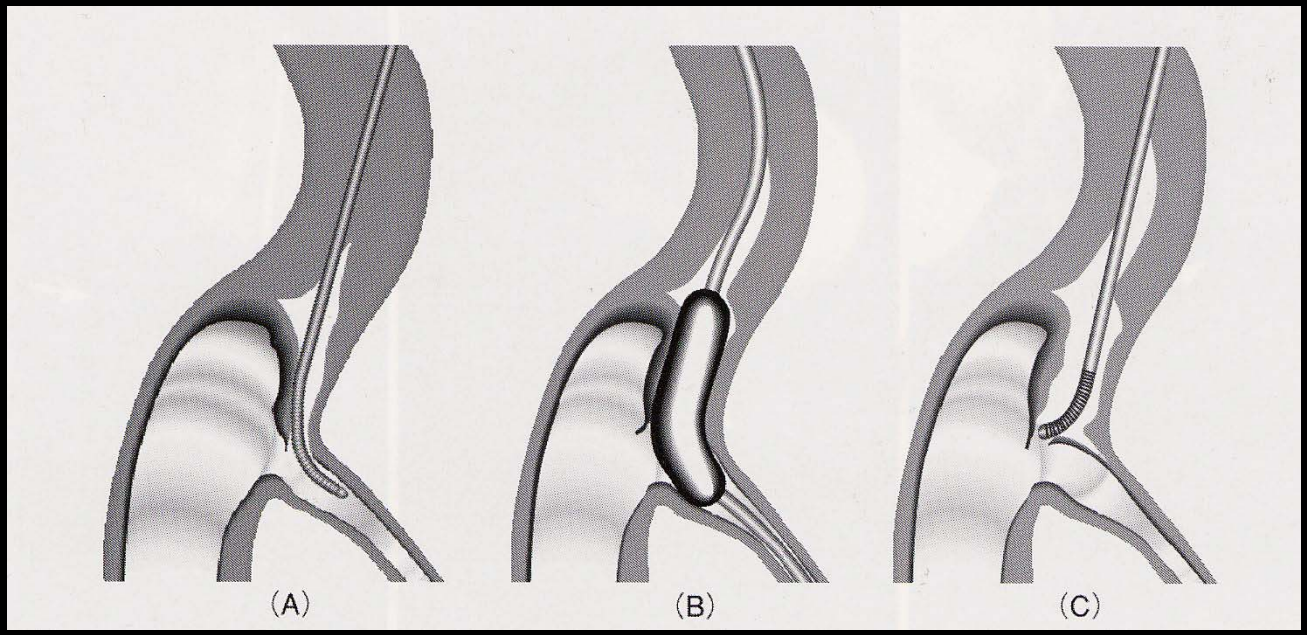



Neo’s conquest,Cross sail 1.5×10mm

# Case4-4



# 5. Side brunch technique




AS show in(A),pass a wire through the lesion near the entry of the lateral branch toward the distal side.Carefully check that the site of penetration is not in the farther side of the entry.Make a crack at the entry of the lateral branch using a 1.5mm balloon(B).After confirming that the lesion has been perforated again,select the trunk (C)

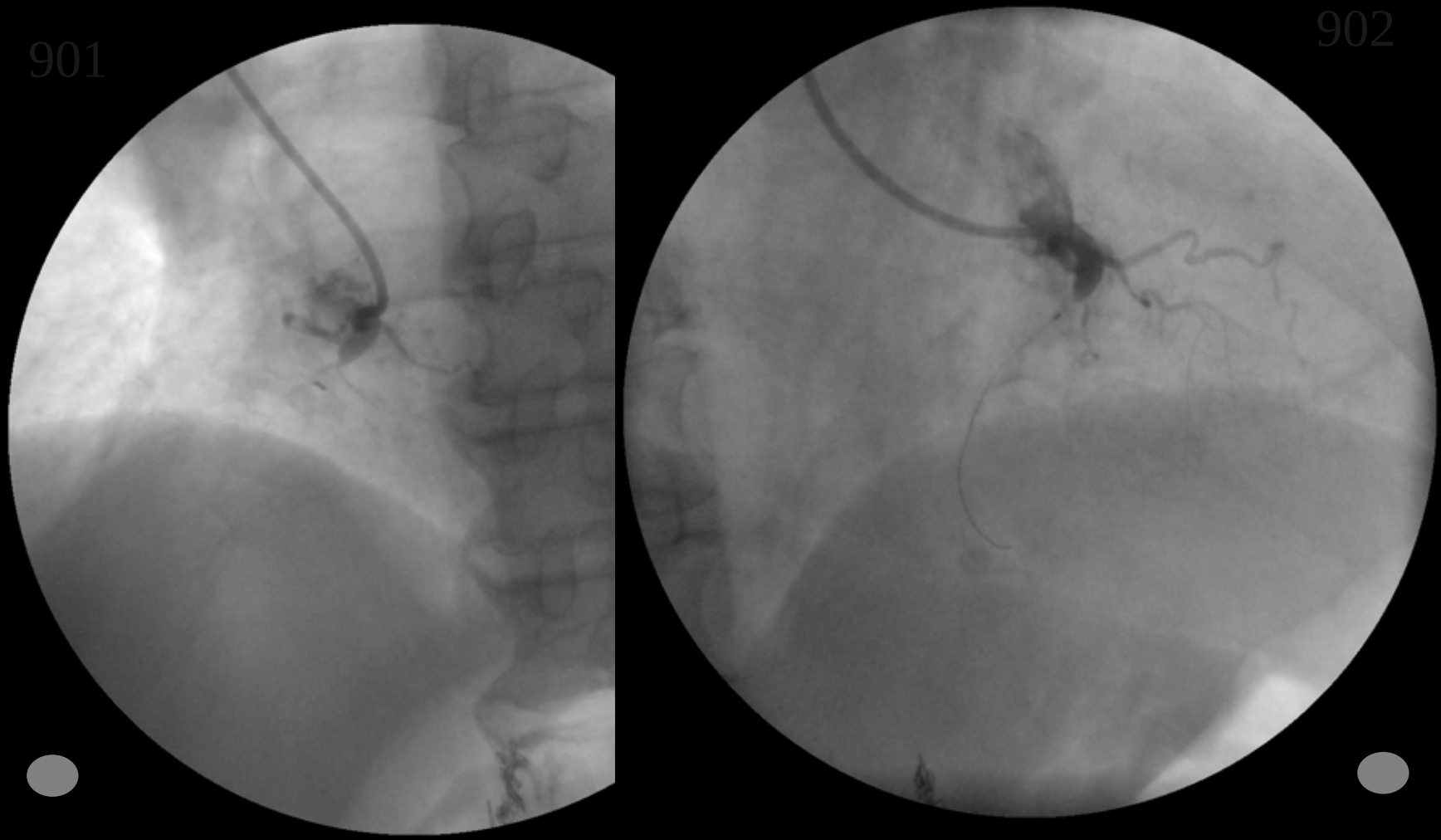
# Case5-1

Case:K.K.　　Age:75y.o. Gender:M
Clinical diagnosis:AP
Clinical course:　2003.3.～effort angina.
　　2003.4.5.CAG
Coronary risk factor: smoking

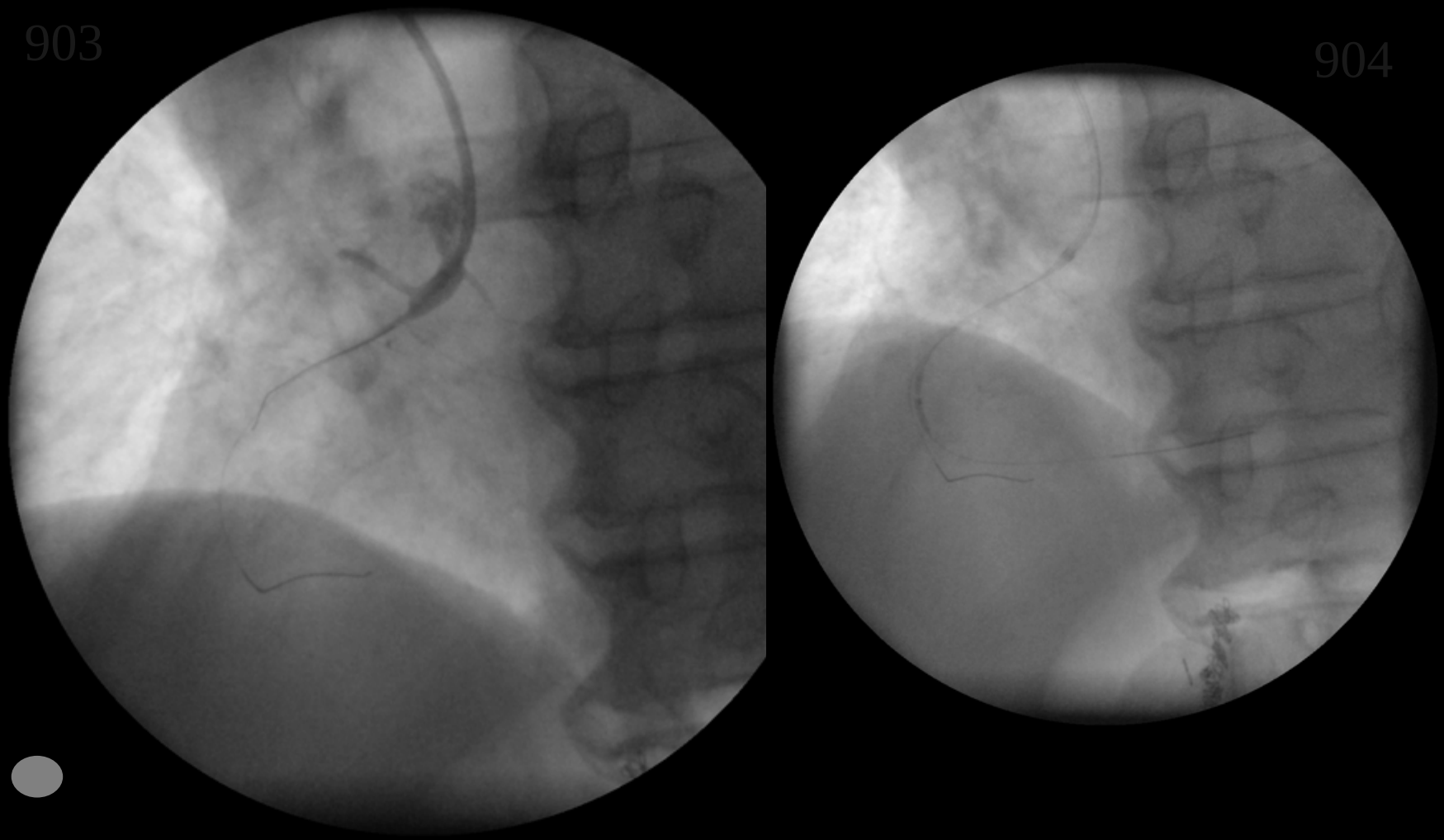
CAG:2003.4.5.
LMT:
RCA:(1) 100%
LAD:
LCX:

Device
Approach site:radial(rt)
GC:Mach1AL0.75(6Fr) →
　ZumaII MAC3.5(6Fr)
GW:ACS HT-whisper MS→
　　Neo's conquest →
　　HT-BMW
Ba: Maveric$^2$ 1.5×15mm
　　Tsurugi　3.0×30mm
Stent: PENTA 3.5×23mm

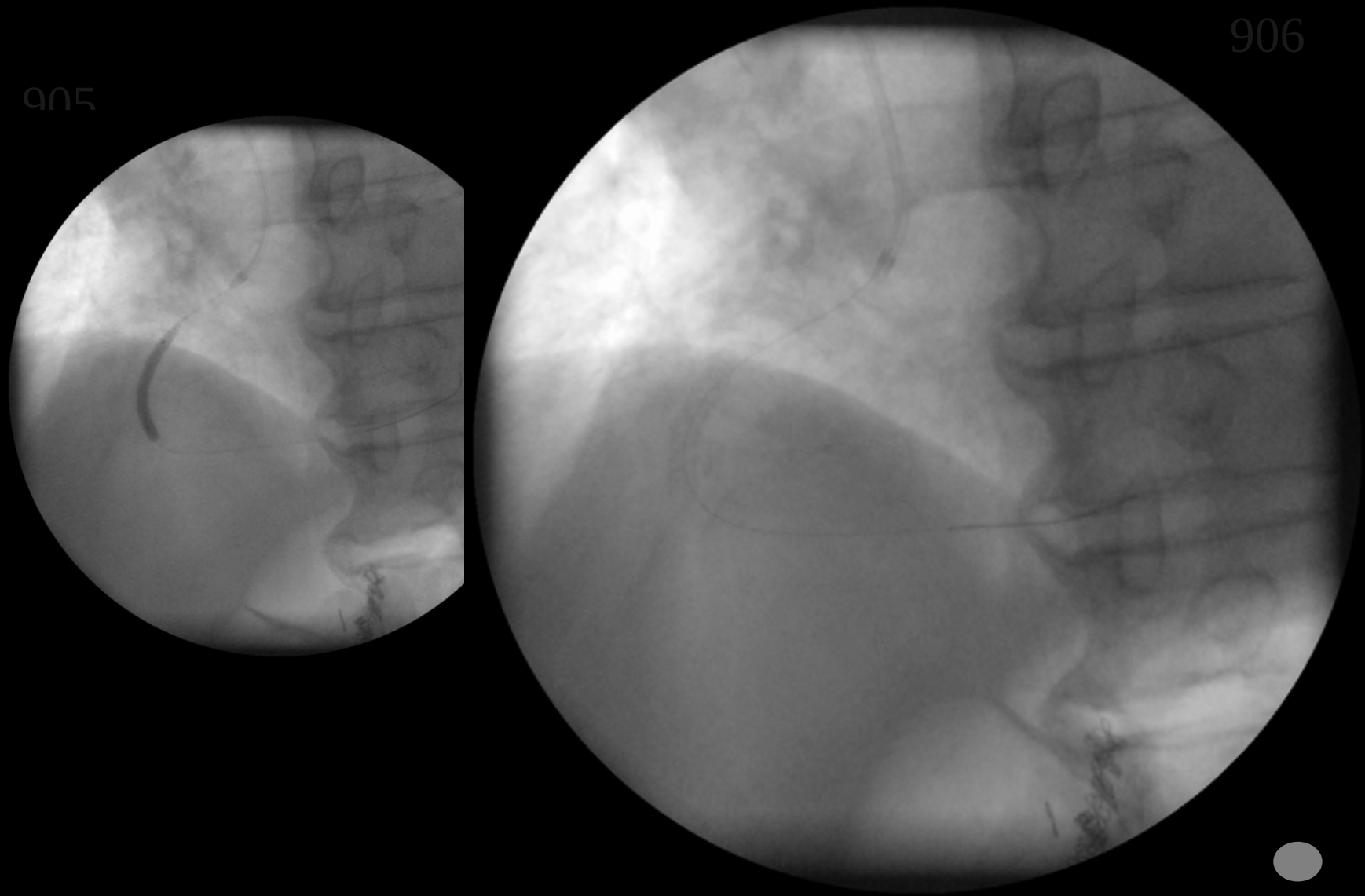
# Case5-2



# Case5-3



# Case5-4



## 6.Anchor balloon technique

**When using a 6Fr guiding catheter for a CTO lesion:**
**We use the Anchor balloon technique when a guide wire cannot penetrate the last 1mm occlusion.**
**We place a balloon (3.0-3.5mm diameter) just proximal to the CTO lesion. And inflate the balloon to 4 - 6 atmospheres.**
**Push the guidwire through and over the CTO lesion.**

## Conclusion

**The success rate of the trans-radial approach for CTO lesions was comparable to that of TFI. However, it was necessary to use various techniques to attain this rate. I think that it is most important to determine whether TRI can be performed on a patient.**