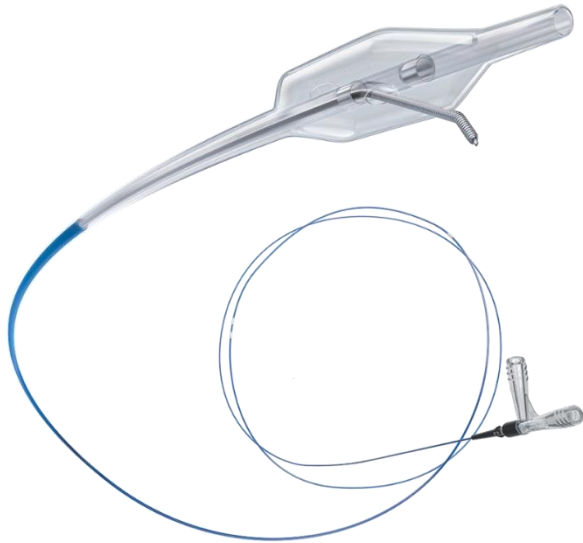


Antegrade Dissection and Re-entry (ADR) in Japan



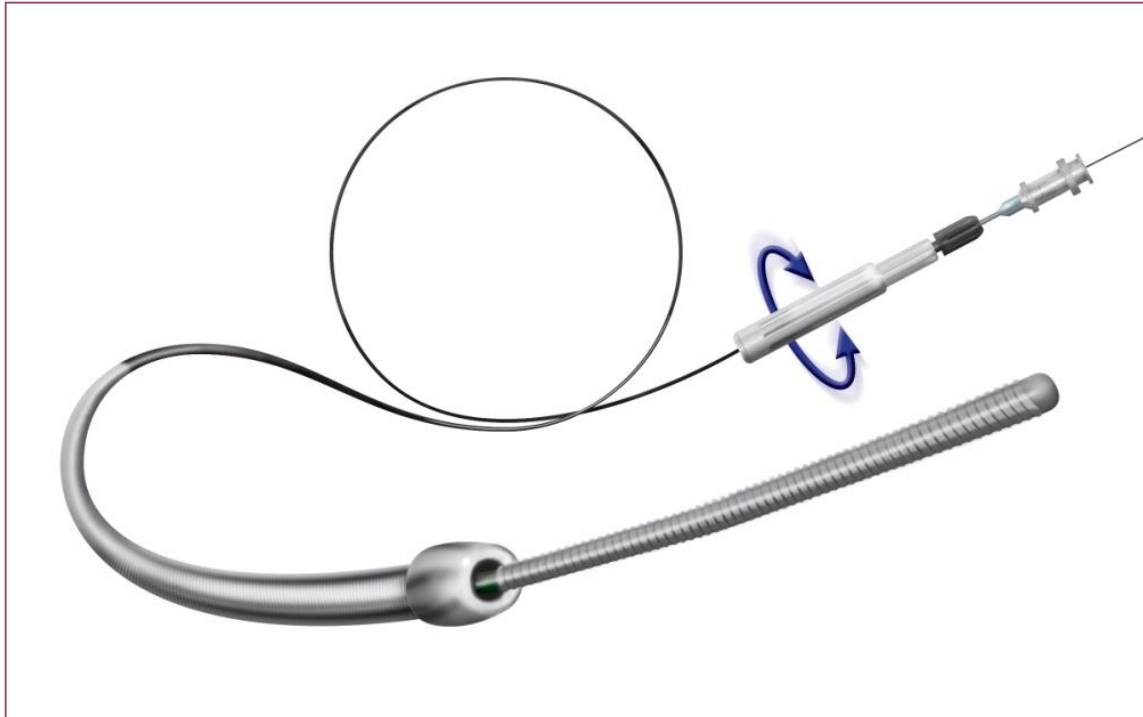
Toyohashi Heart Center

Maoto Habara, MD

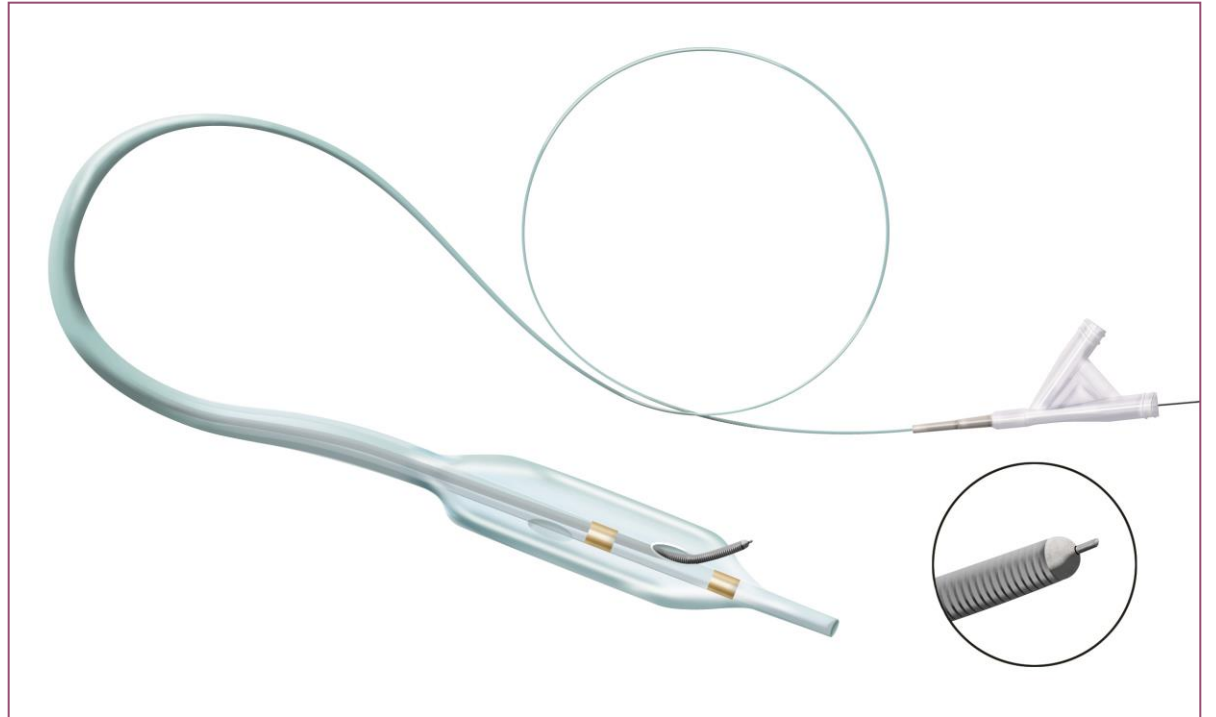


Antegrade dissection re-entry (ADR) system

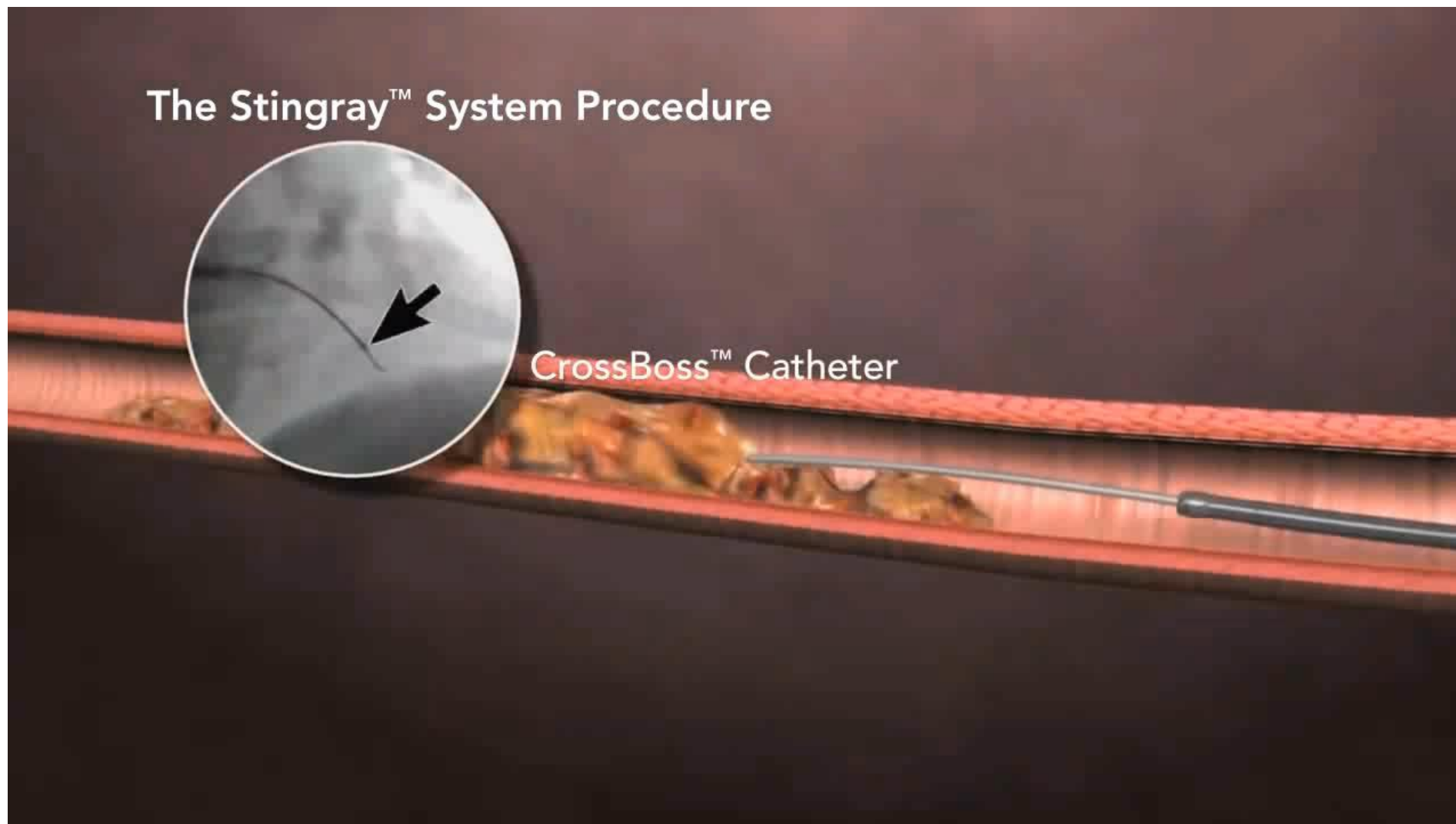
CrossBoss™ Catheter



Stingray™ Catheter



CrossBoss™ Catheter



Stingray™ Catheter

The Stingray™ LP System Procedure



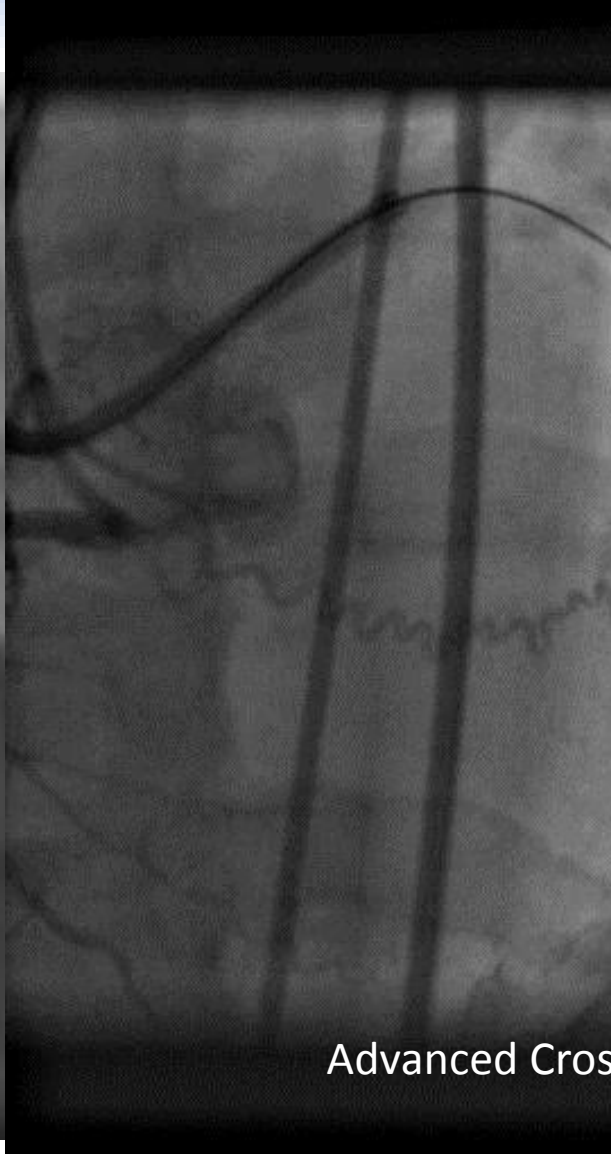
Advantage of ADR procedure

If Succeeded: Retrograde approach would not needed

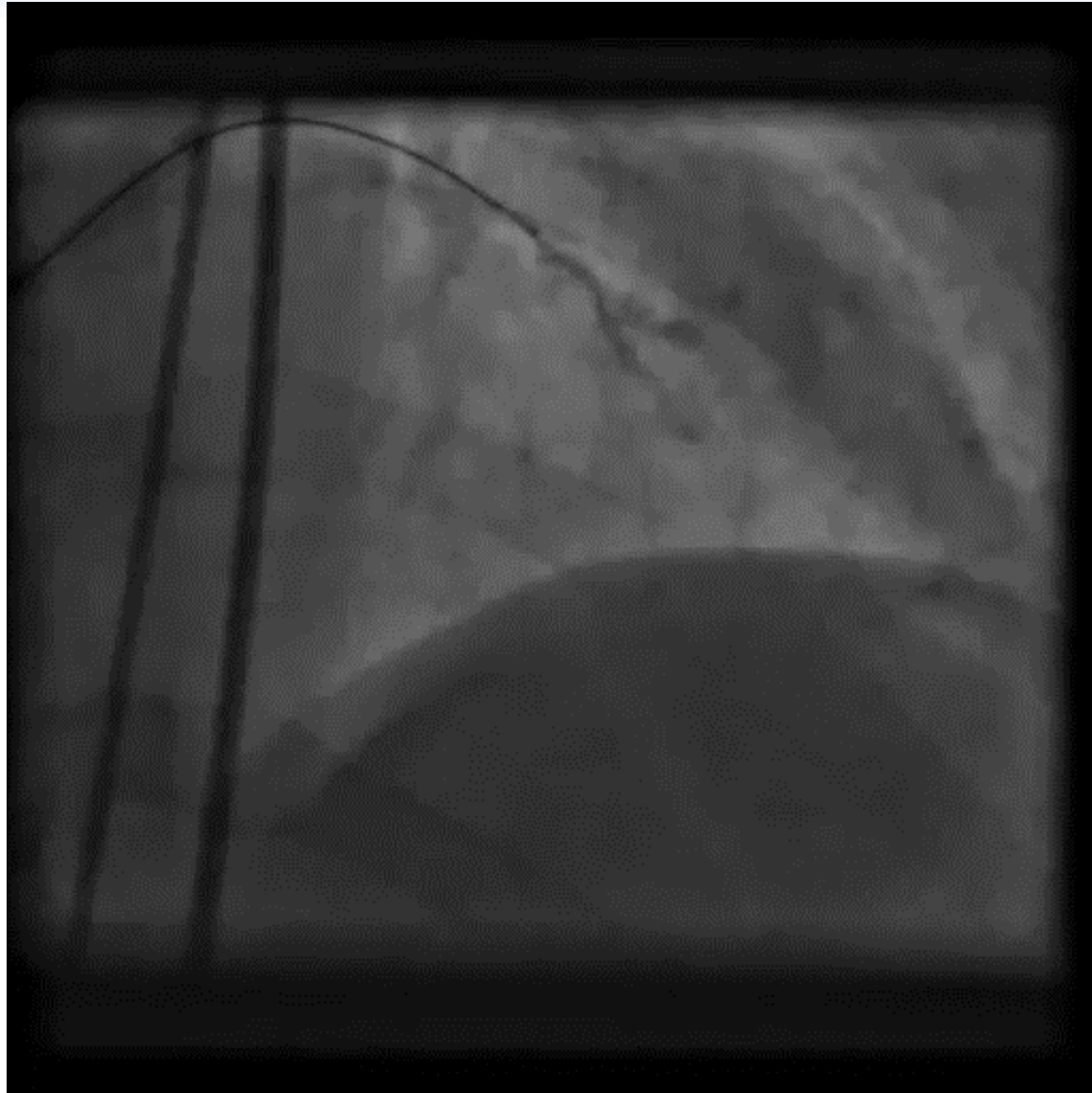
- ① Shortening the procedure time
- ② Complication of donor artery will be decrease

Limitation of ADR procedure

Case: LAD CTO



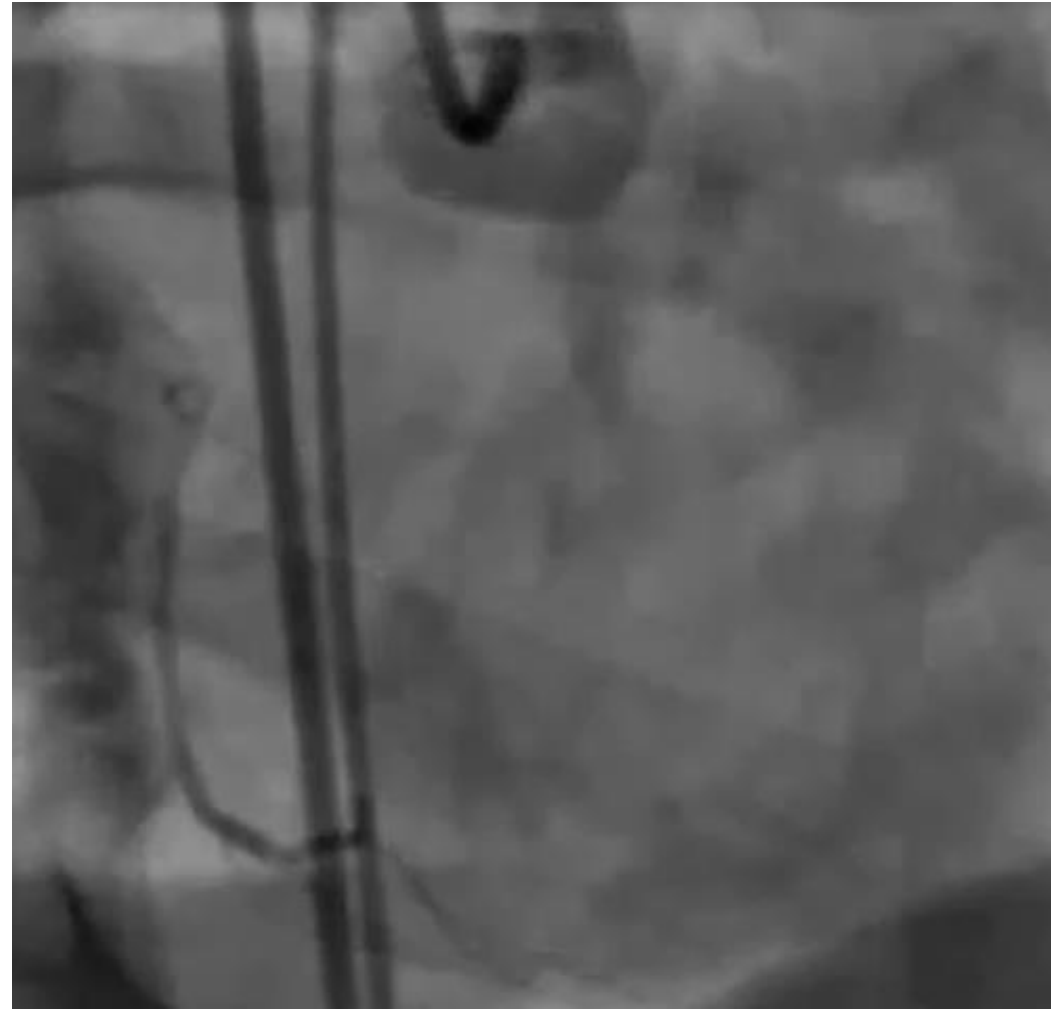
Complication ; Perforation due to CrossBoss

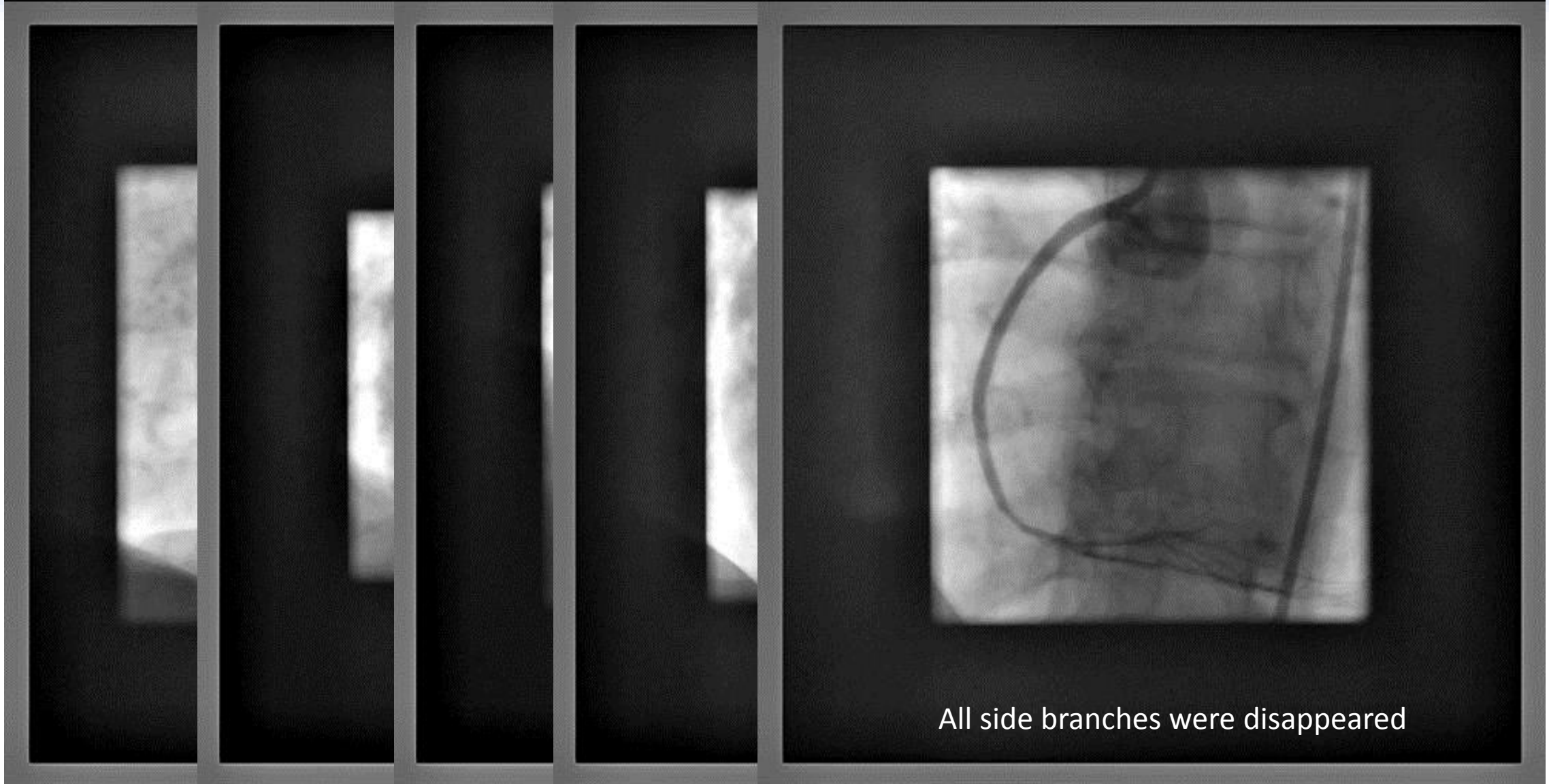


CrossBoss catheter is not controllable device and easily go into side branch with branch vessel perforation.

How about in Japan?

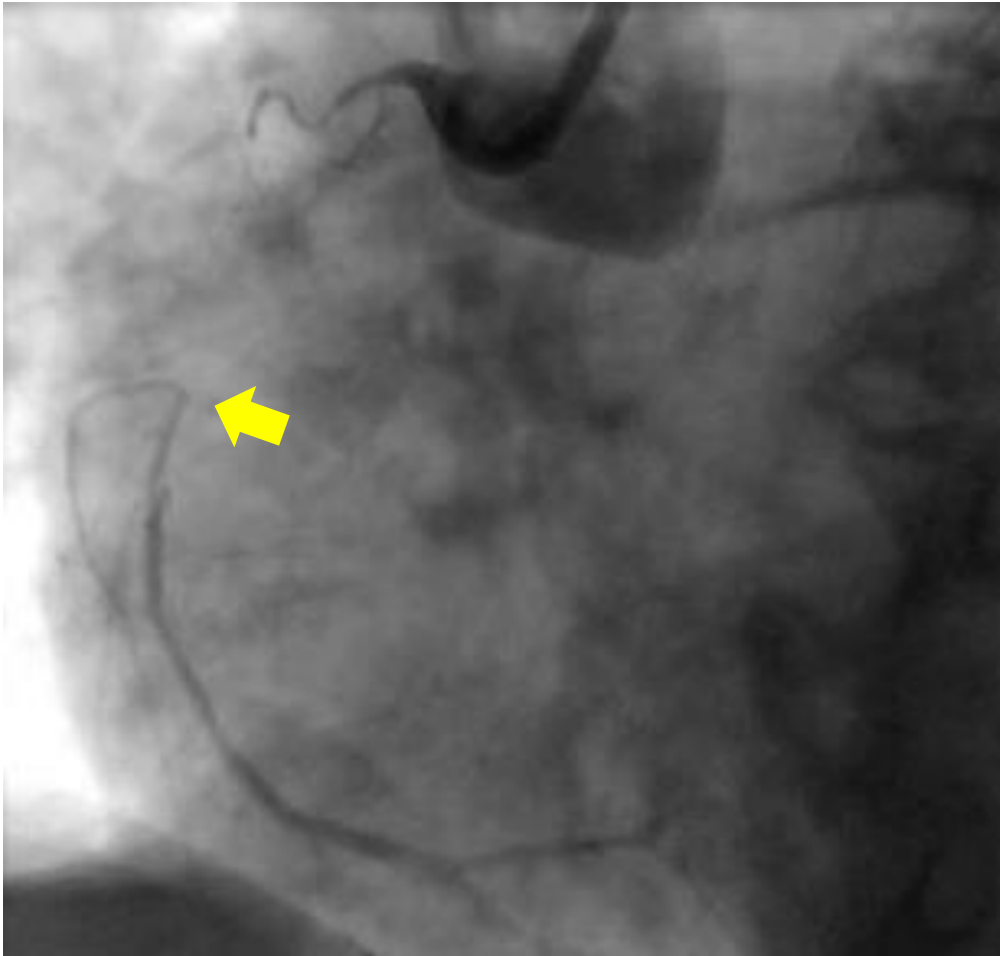
Case: RCA CTO





All side branches were disappeared

Complication ; Loss of side branches



CTOs involving a big side branch, such as a distal right coronary occlusion up to posterior bifurcation, are not indicated for this device.

In the retrograde approach, the side branch could be protected.

How about in Japan?

Limitation of ADR procedure

- ① CrossBoss perforation
- ② Loss of Side branch
- ③ Length of subintimal stent

ADR workshop @ Japan

Inclusion Criteria

CTO with relatively disease free re-entry zone and the absence of sever calcification evaluated **by cardiac CT (or Angiography)**.

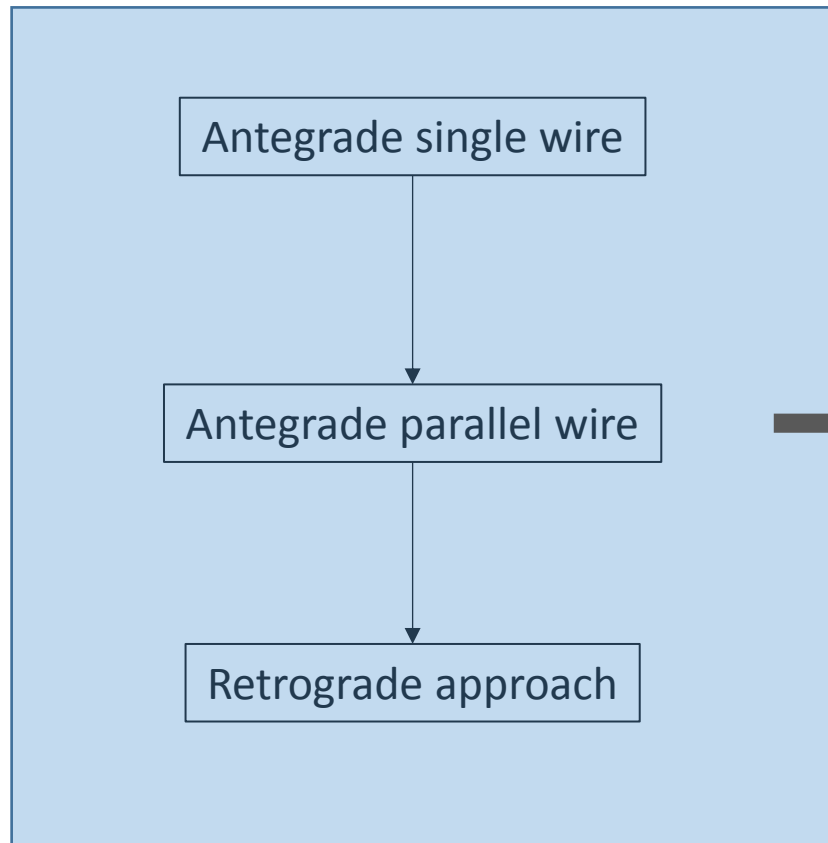
In addition, CTOs not involving a big side branch.

April. 2017 – April. 2018

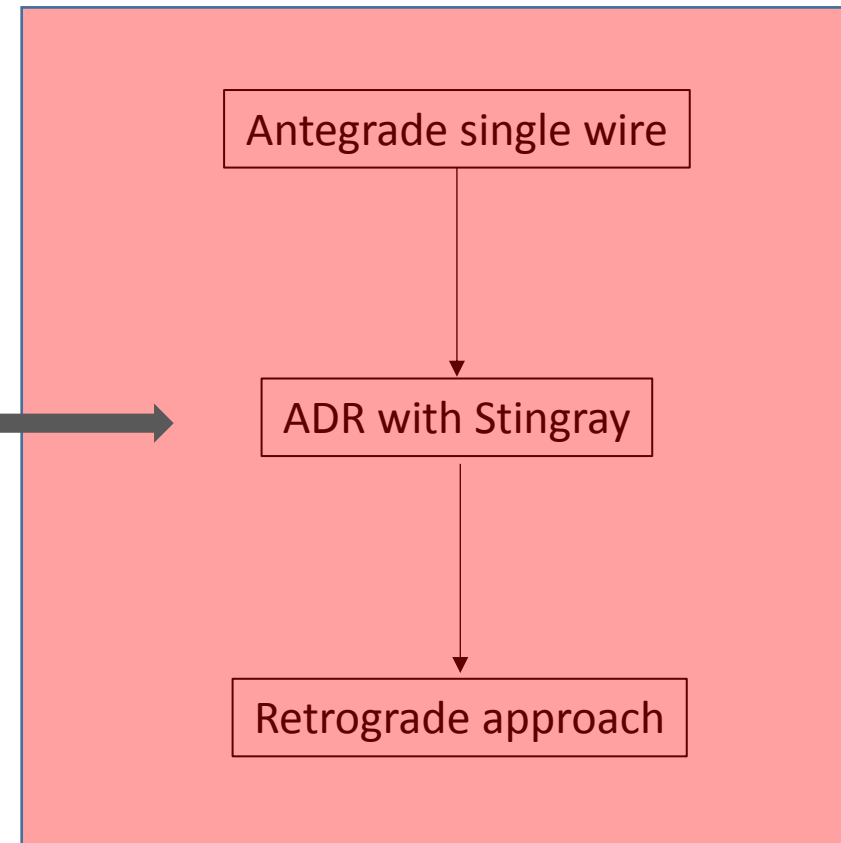
Total 22 CTO cases were selected for ADR workshop

@ 13 Centers

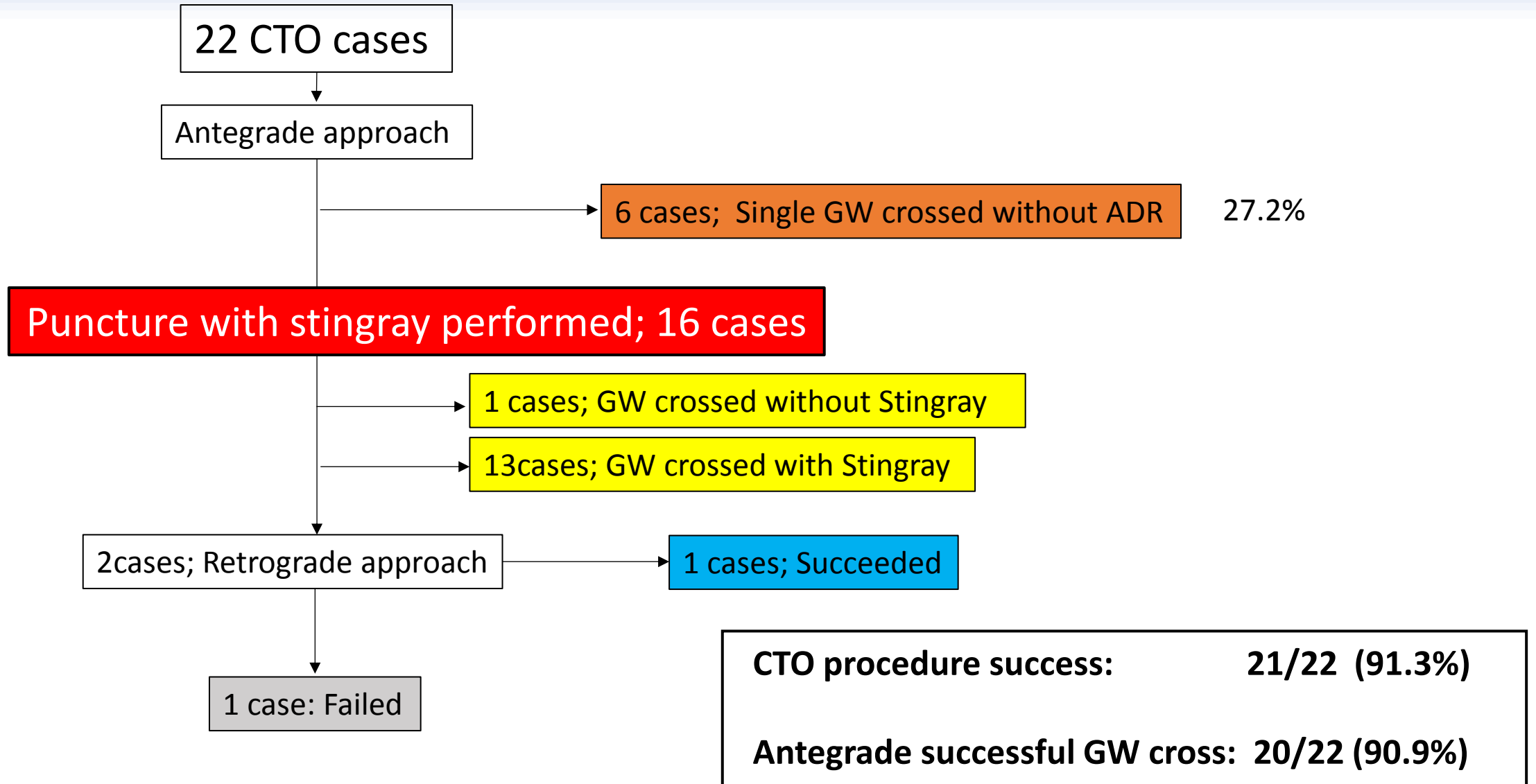
Usual CTO procedure



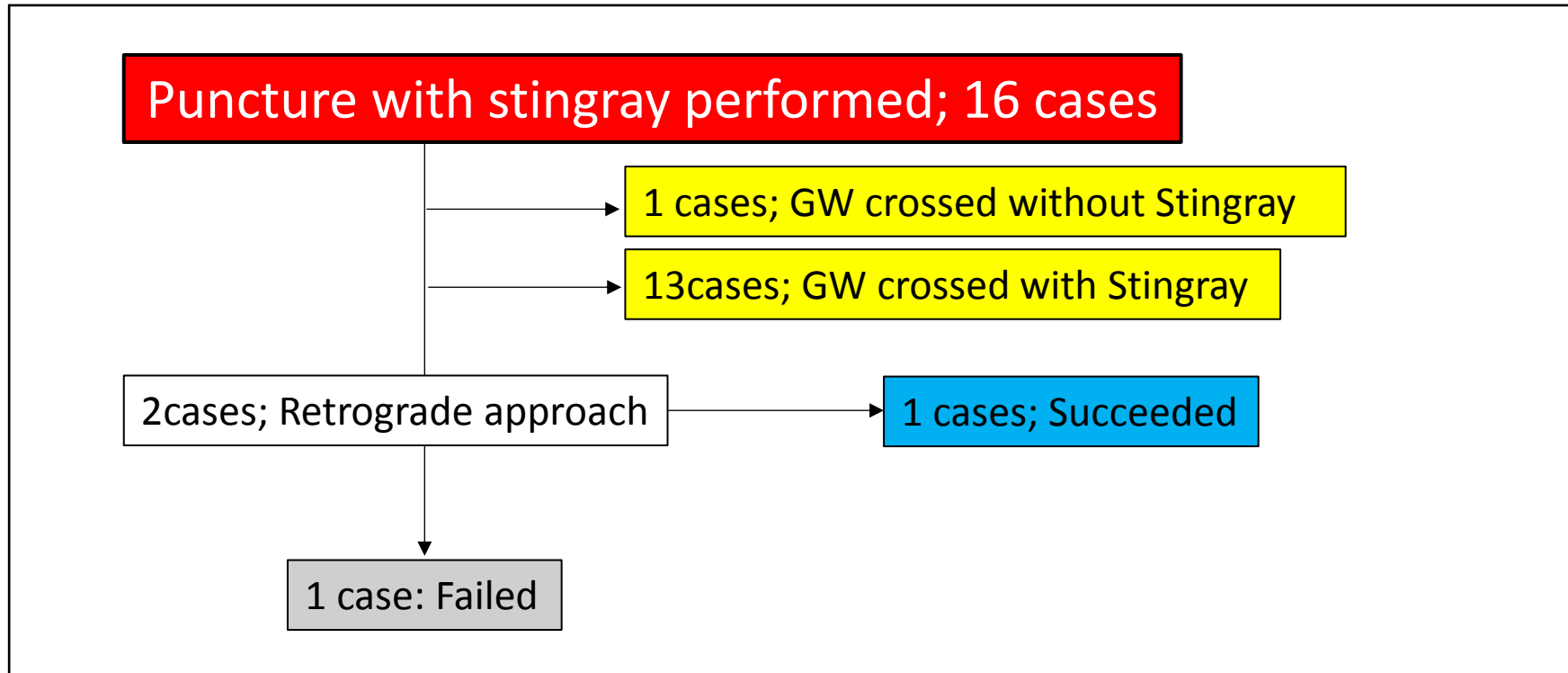
Strategy of this workshop



Result

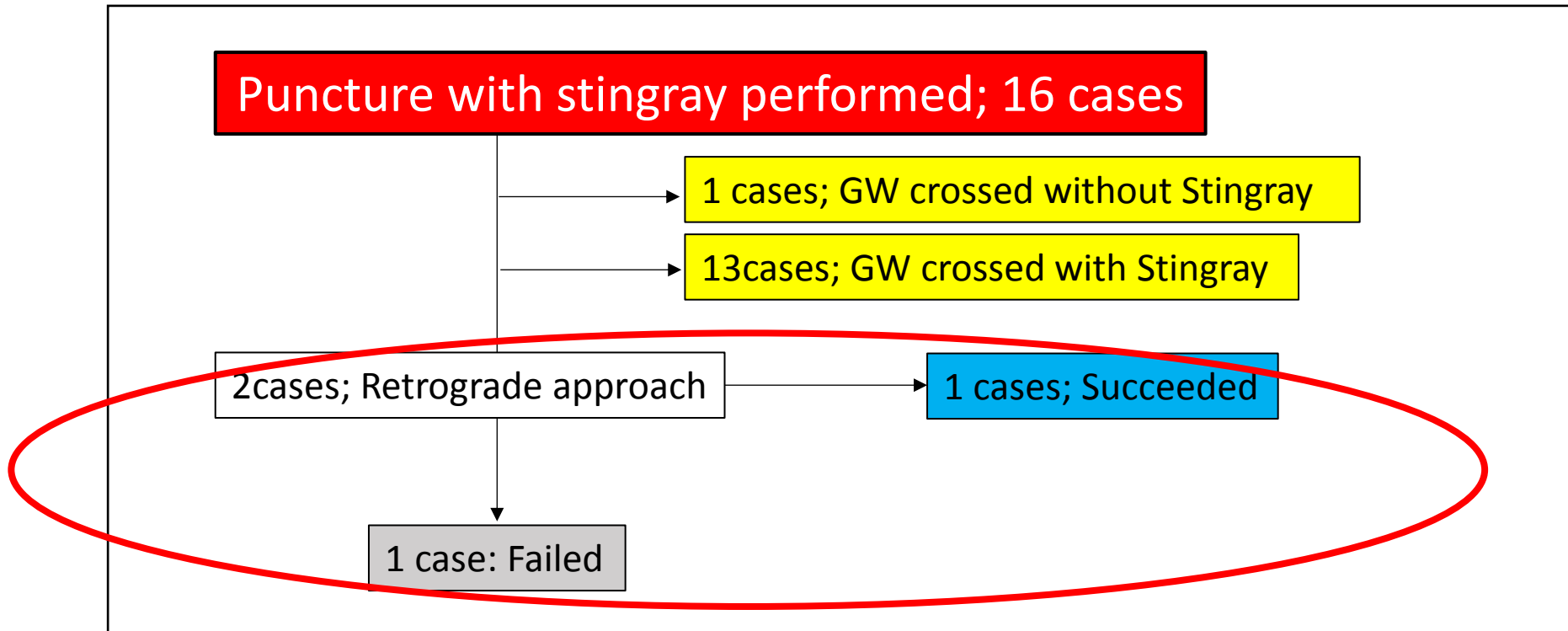


Result



Result

ADR failure case; 2 Cases ;12.5% (2/16)



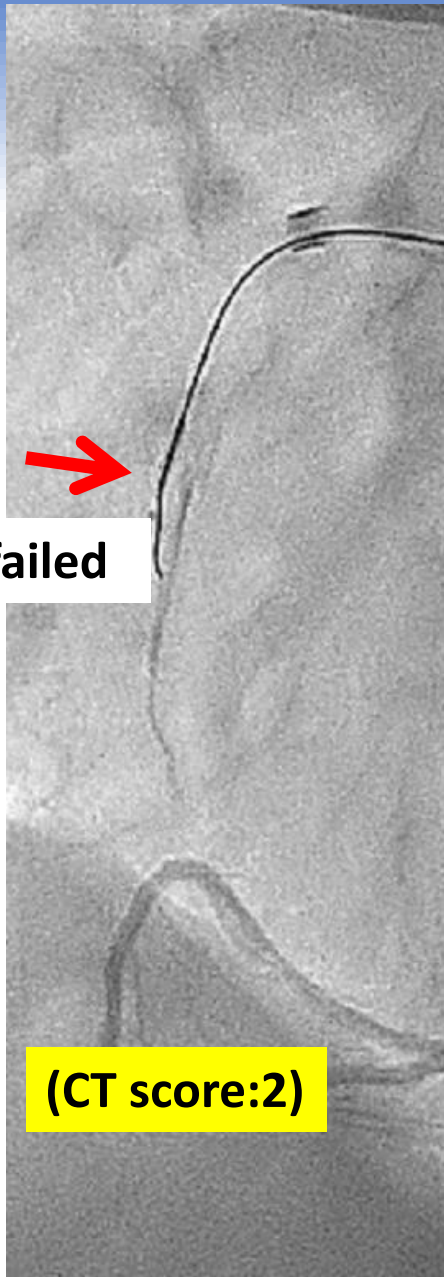
Case1

LAO view



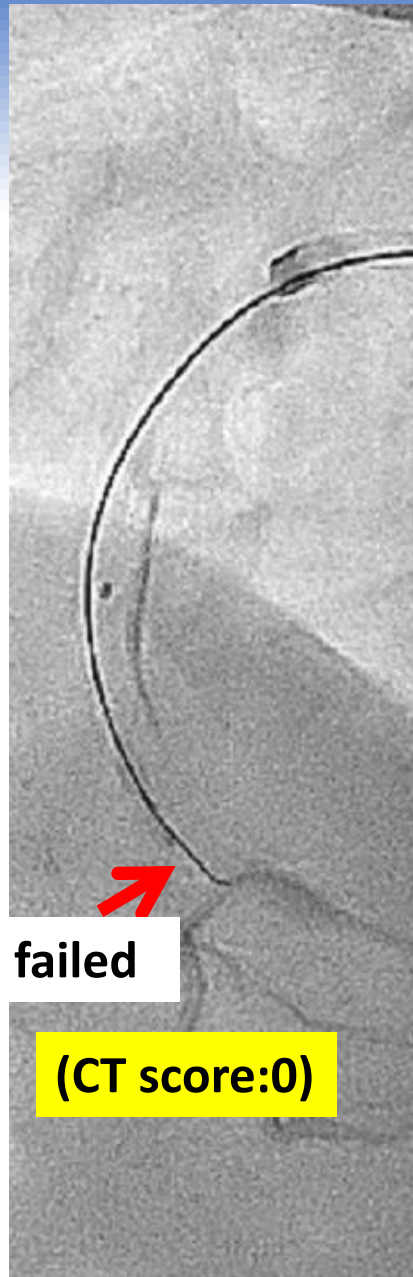
Cranial view





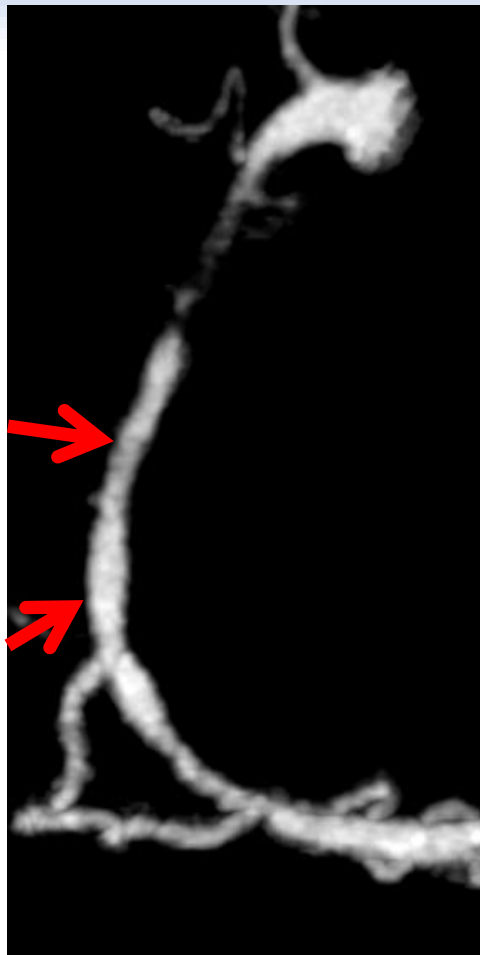
failed

(CT score:2)



failed

(CT score:0)



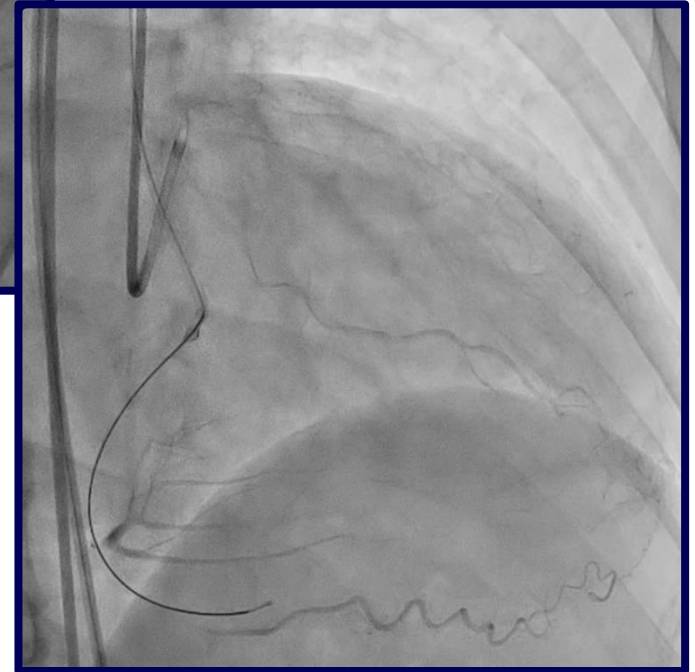
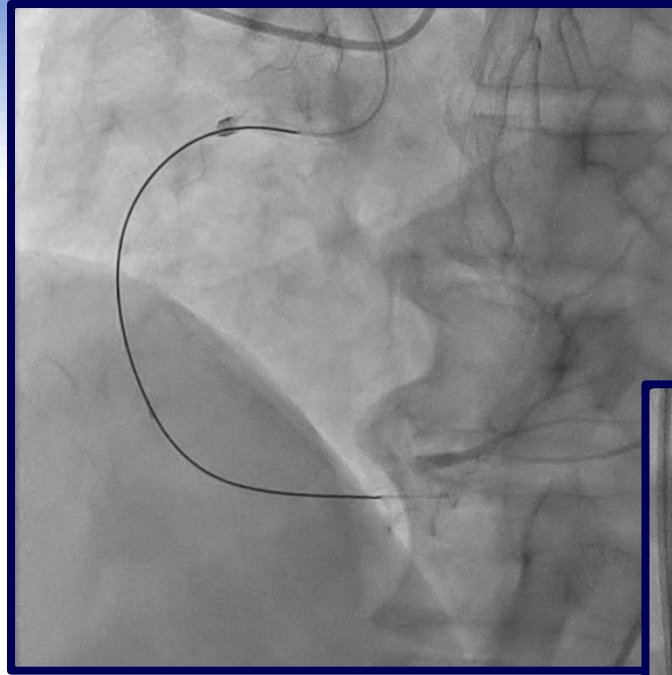
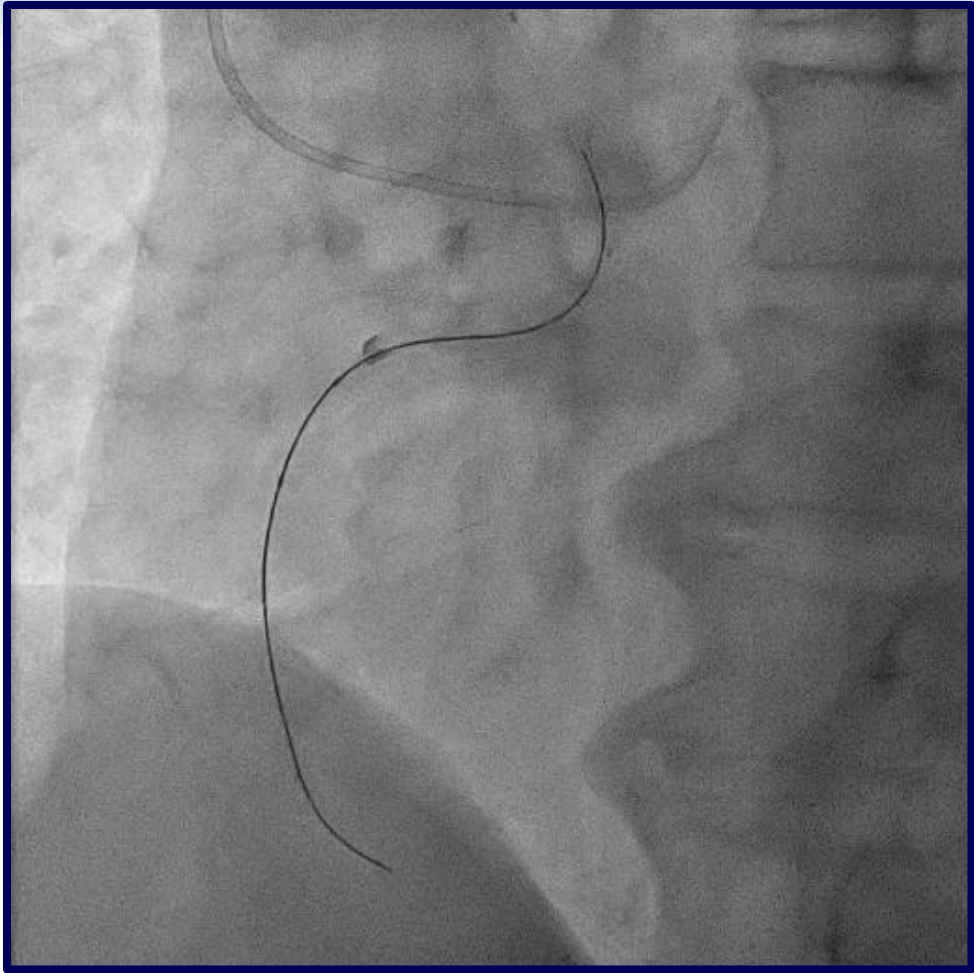
➡ Puncture was failed even though at CT score 0 site



Although Stingray balloon advanced more distal, that could not be advanced.



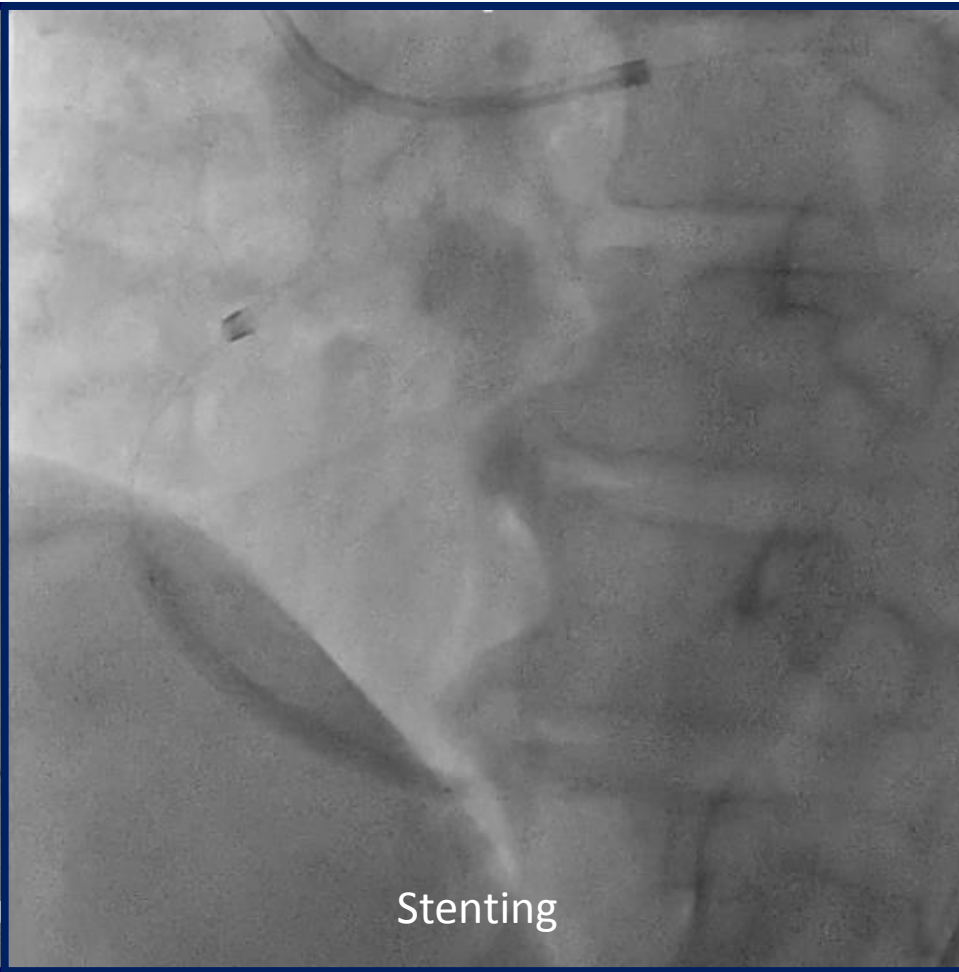
CrossBoss advanced



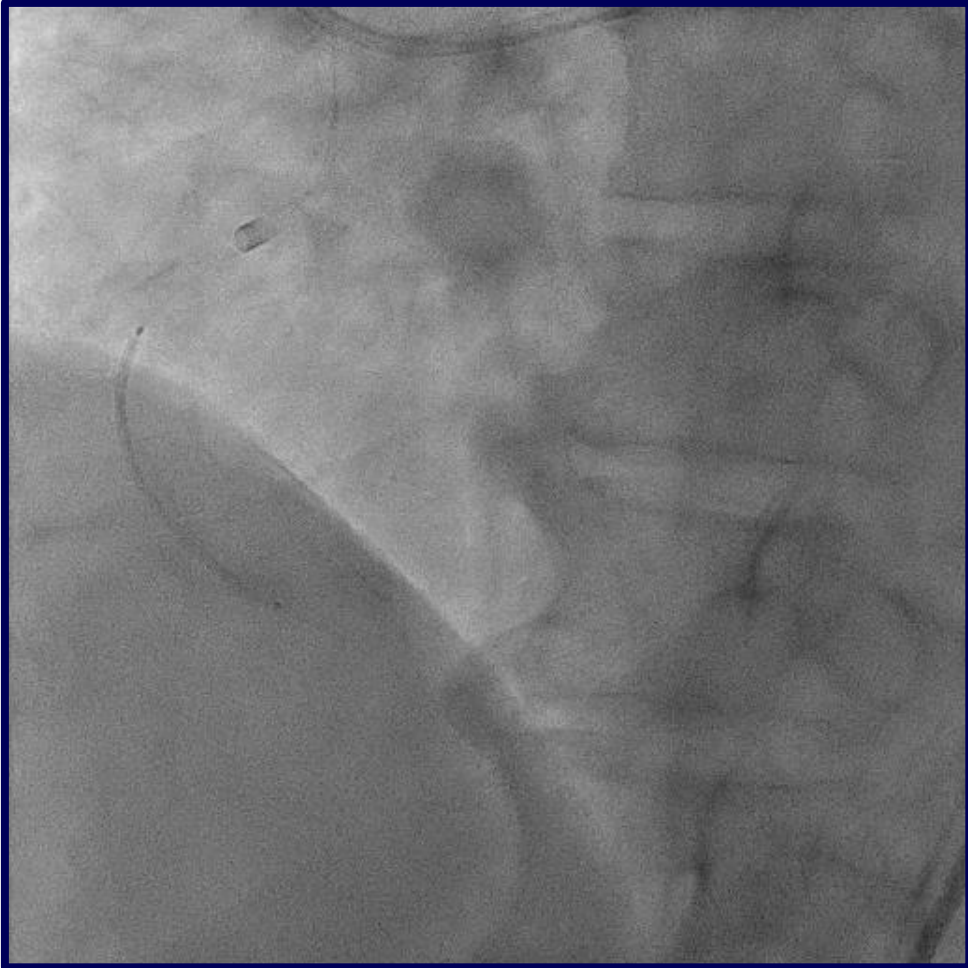
migration of CrossBoss catheter into side branch with branch vessel perforation



Retrograde approach



Stenting

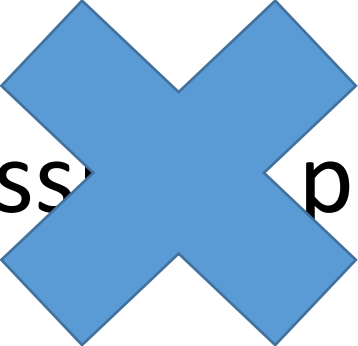


CrossBoss catheter is not controllable device and easily go into side branch with branch vessel perforation



CrossBoss would not be needed in Japanese de novo CTO field

Limitation of ADR procedure

- ① Cross  perforation → Don't need
- ② Loss of Side branch
- ③ Length of subintimal stent

Puncture with stingray performed; 16 cases

Puncture success: 86.7% (13/15)

1 cases; GW crossed without Stingray

13cases; GW crossed with Stingray

IVUS findings after GW crossed

Sub-intimal Space
↓
True Lumen

6 cases
46.2% (6/13)

ADR success

In-intima
↓
True lumen

7 cases
53.8% (7/13)

Stingray success

Puncture with stingray performed; 16 cases

Puncture success: 86.7% (13/15)

1 cases; GW crossed without Stingray

13cases; GW crossed with Stingray

IVUS findings after GW crossed

6 cases
46.2% (6/13)

Sub-intimal Space
↓
True Lumen

ADR success

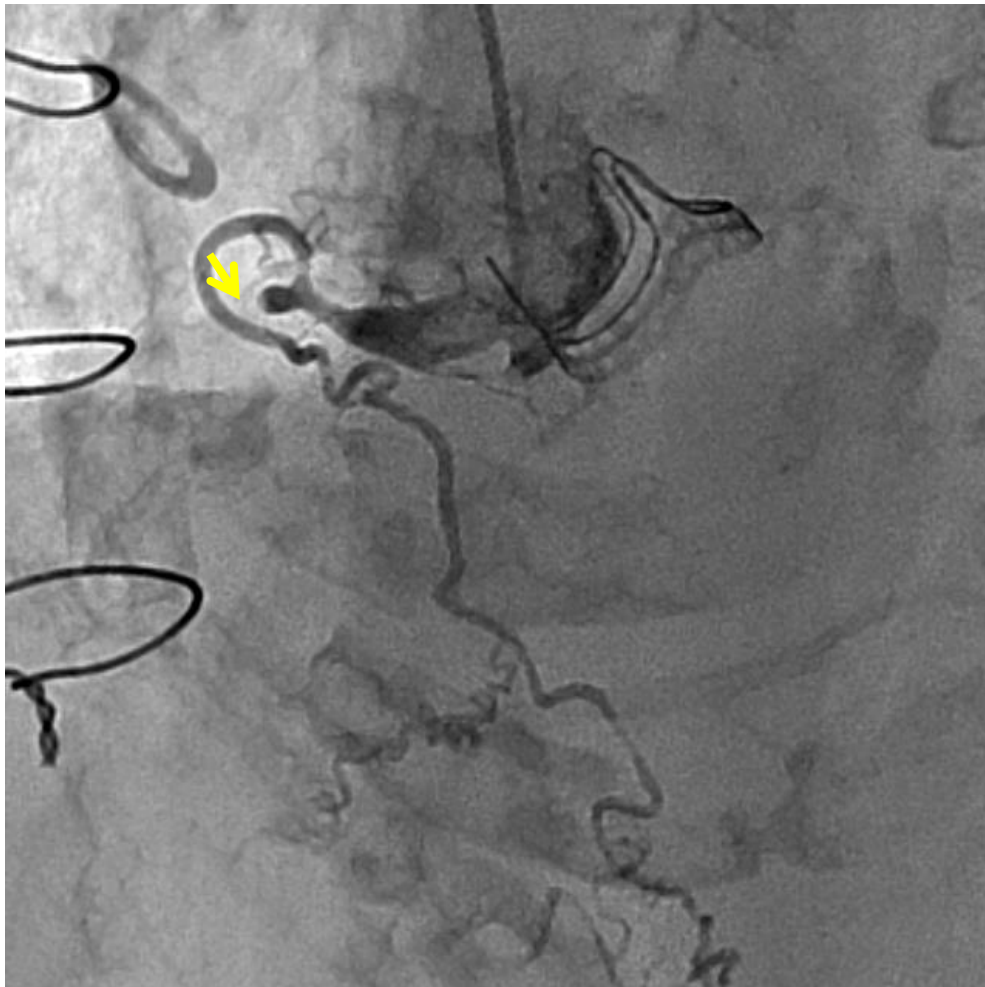
In-intima
↓
True lumen

7 cases
53.8% (7/13)

Stingray success

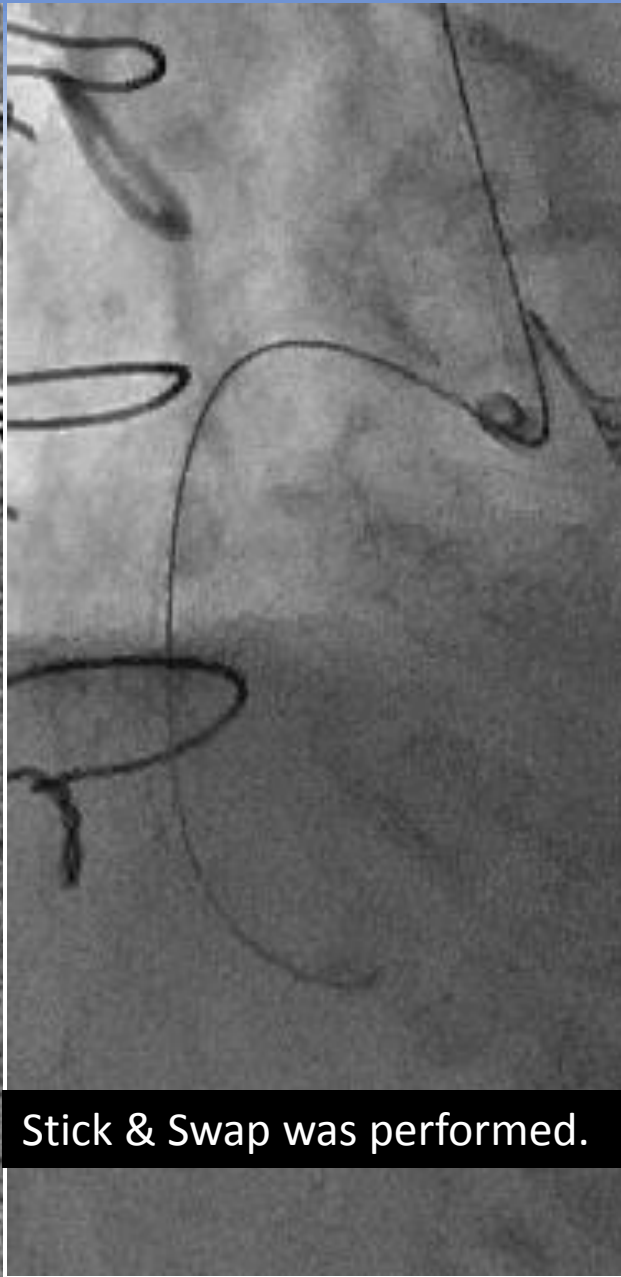
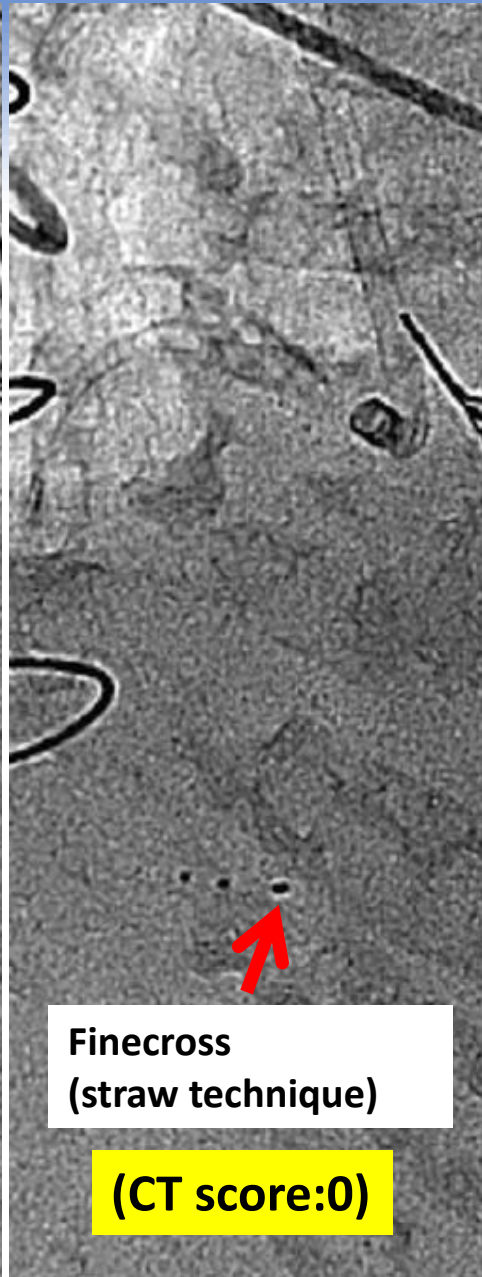
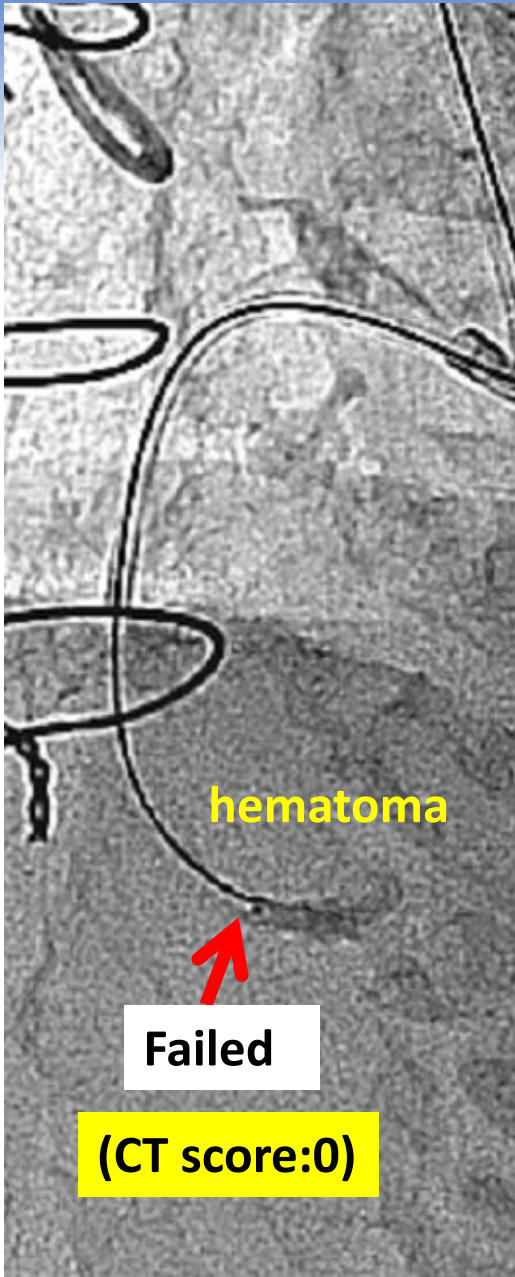
Case 3

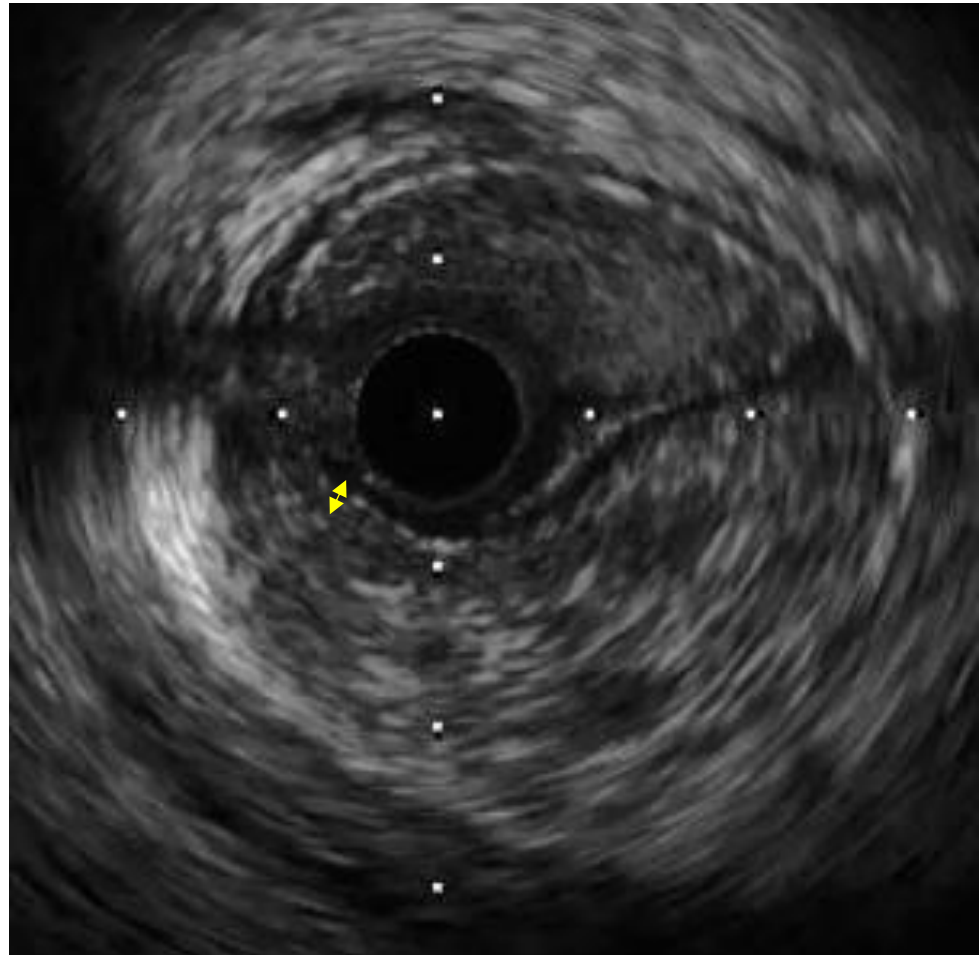
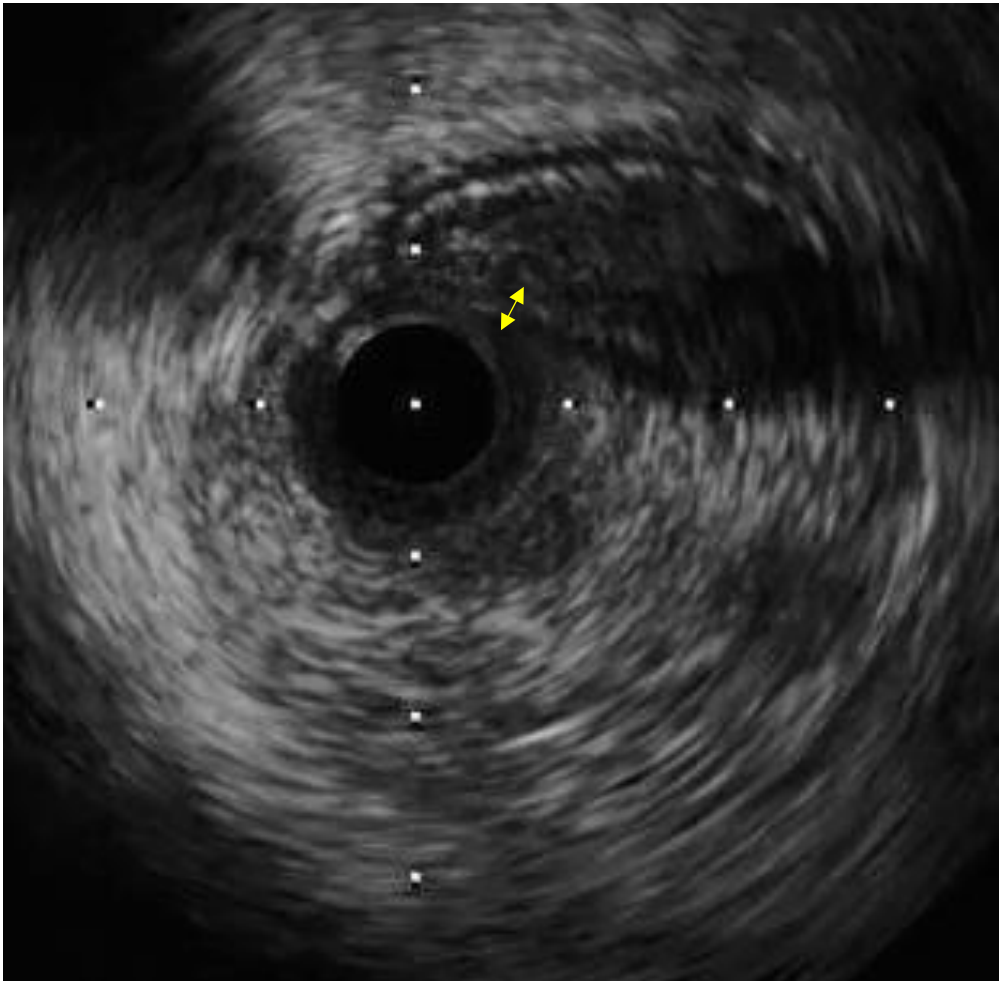
RCA CTO



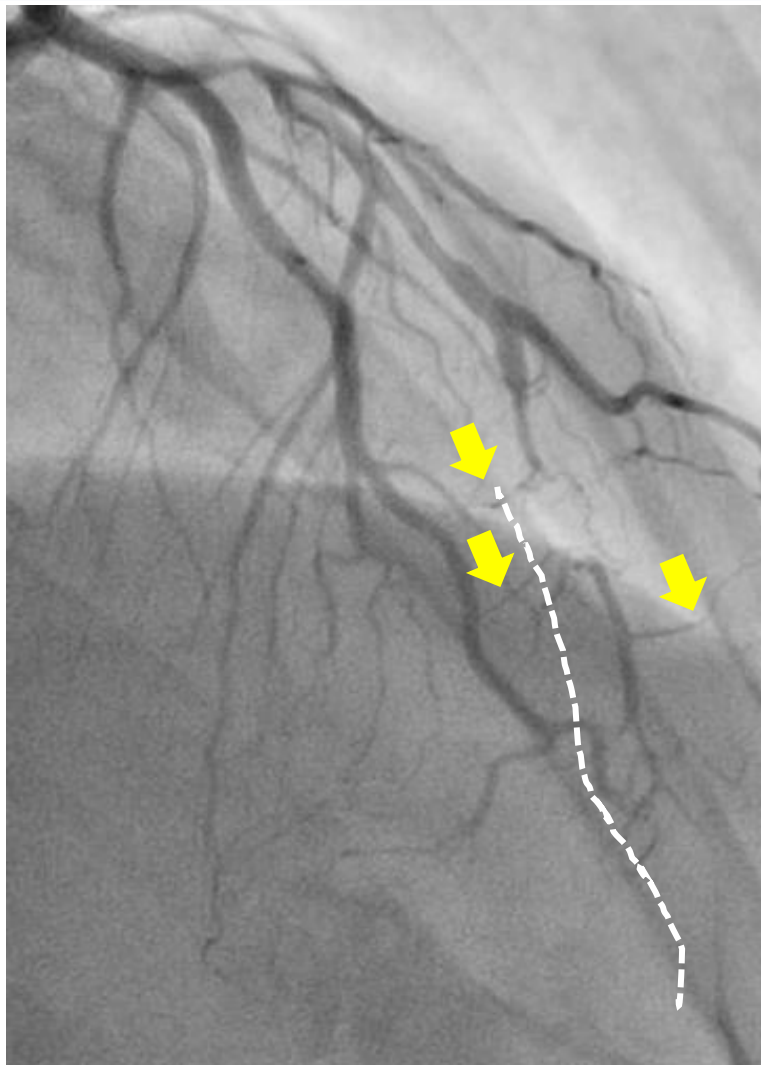
Collateral from LCA

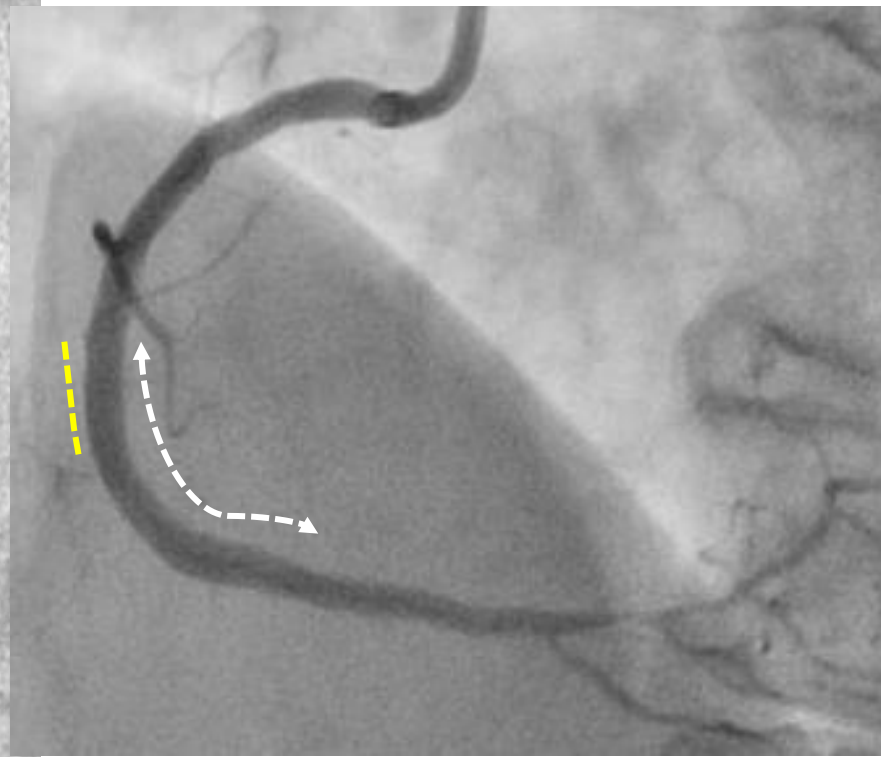
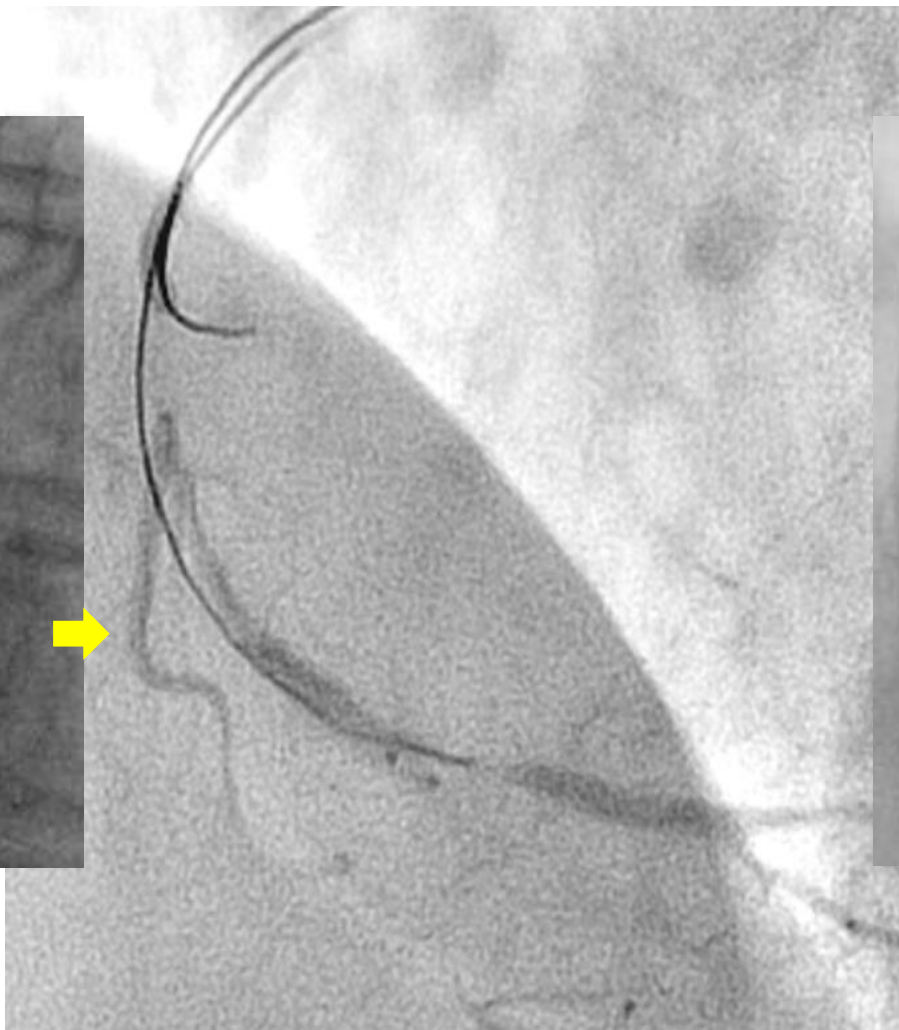
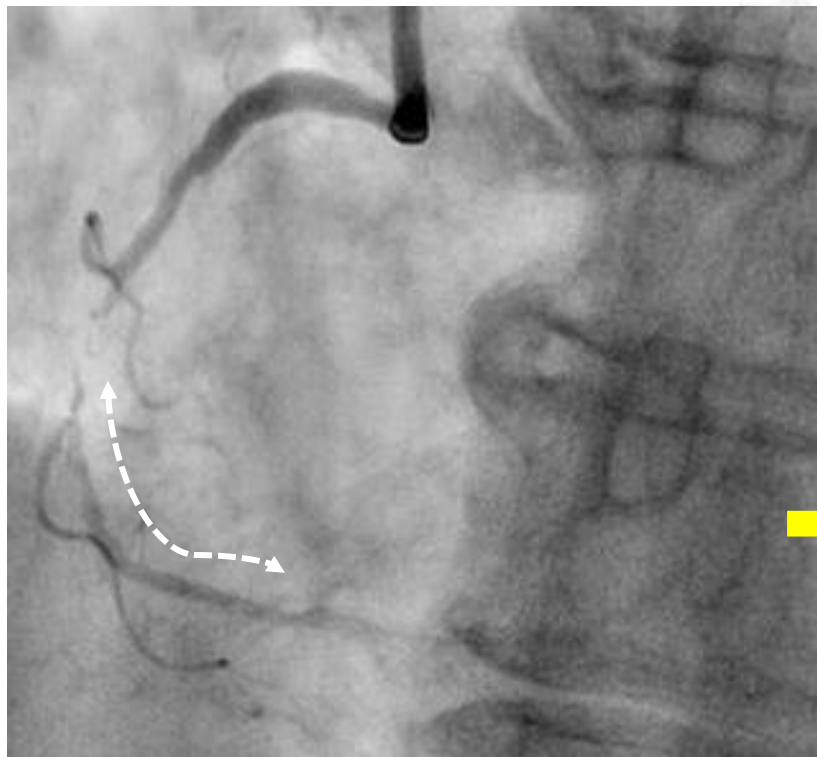






Analysis of Side Branch





Limitation of ADR procedure

① Cross  perforation → Don't Use

② Loss of Side branch

③ Length of subintimal stent

→ Can not avoid
However, further analysis will be needed

Puncture with stingray performed; 16 cases

Puncture success: 86.7% (13/15)

1 cases; GW crossed without Stingray

13cases; GW crossed with Stingray

IVUS findings after GW crossed

6 cases
46.2% (6/13)

Sub-intimal Space
↓
True Lumen

ADR success

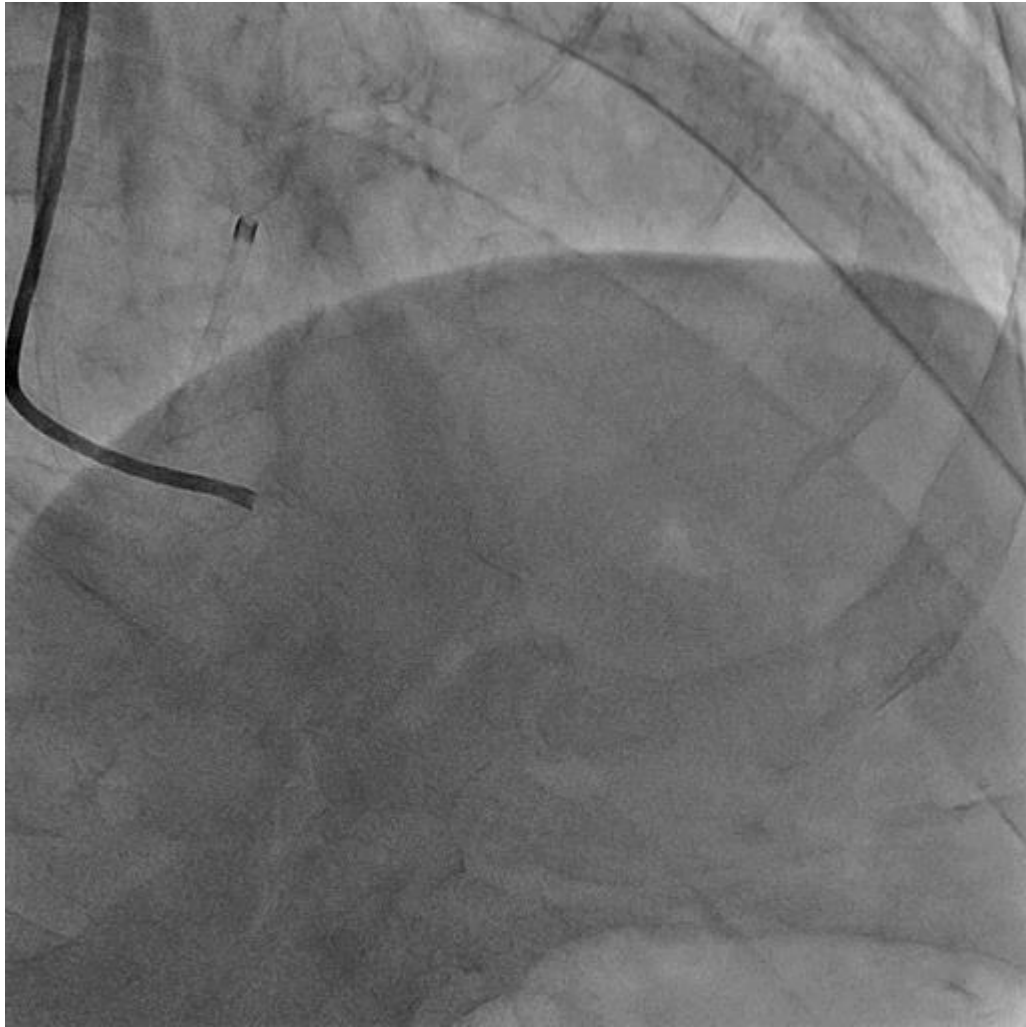
7 cases
53.8% (7/13)

In-intima
↓
True lumen

Stingray success

Case 4

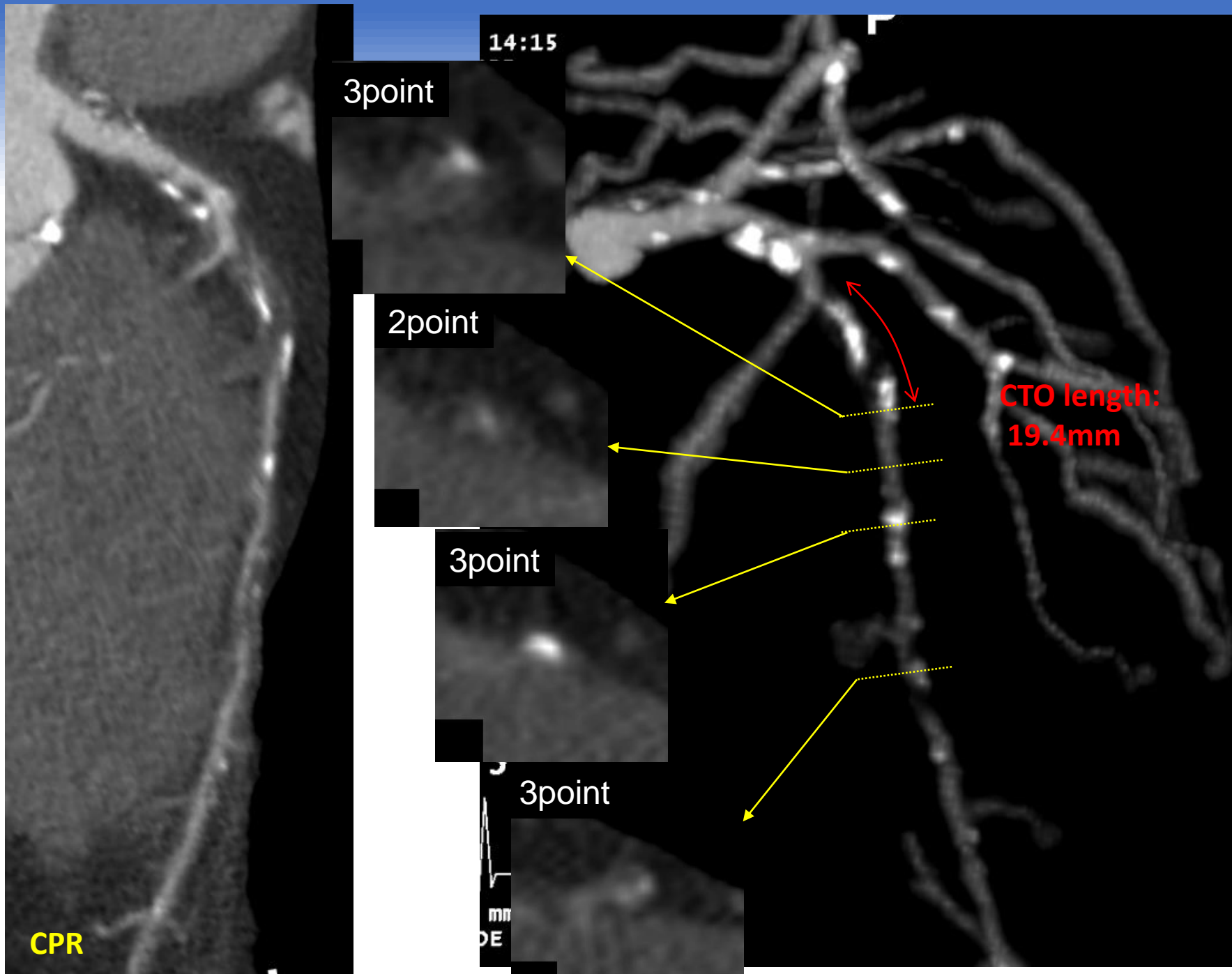
RAO/Cranial view

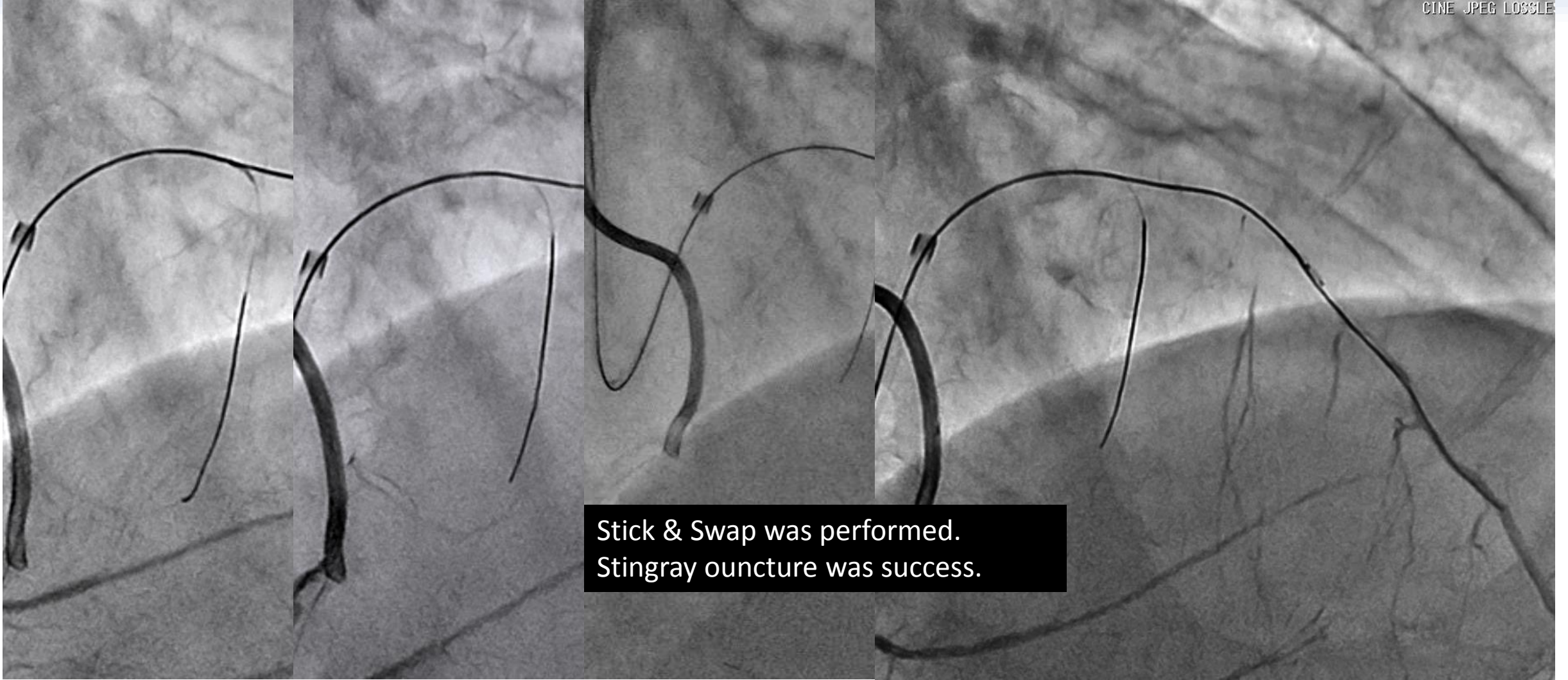


RAO/Caudal view



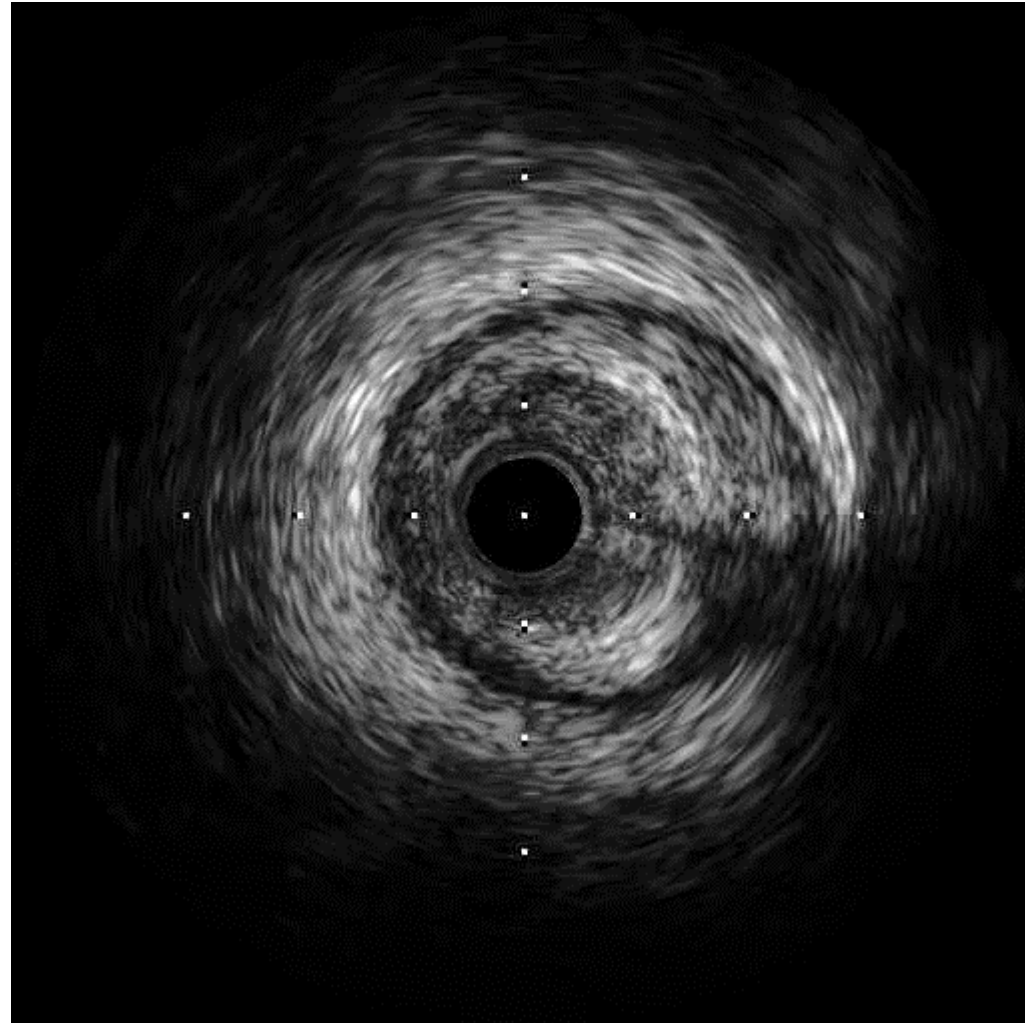
CT





Stick & Swap was performed.
Stingray ouuncture was success.

IVUS



SUMMARY 1

Overall success rate of CTO was 91.3 % (21/22).

Success rate of antegrade GW cross was 90.9 % (20/22).

Technical success rate of stingray was 87.5 % (14/16).

Retrograde approach was needed only 2 cases

SUMMARY 2

- ◆ CrossBoss catheter must not be needed Japanese style CTO-PCI
- ◆ It is not easy to puncture at just distal of CTO → Side branch occlusion, Long sub-intimal stent
- ◆ Not all cases were **subintima** → **True** after stingray puncture with Japanese style careful wiring.

Limitations & Further analysis

- ◆ Procedure time was not analyzed.
- ◆ CK after PCI procedure was also not analyzed.
- ◆ There was no follow up data.
- ◆ Parallel wire technique was not used in all cases

Conclusion

Stingray system is still in the early stage in Japanese CTO field.

Although not all lesions are suitable for ADR, those devices would be useful tool in some CTO case.

We must try to obtain the appropriate way to use the device