Common CTO PCI complications and trouble shooting

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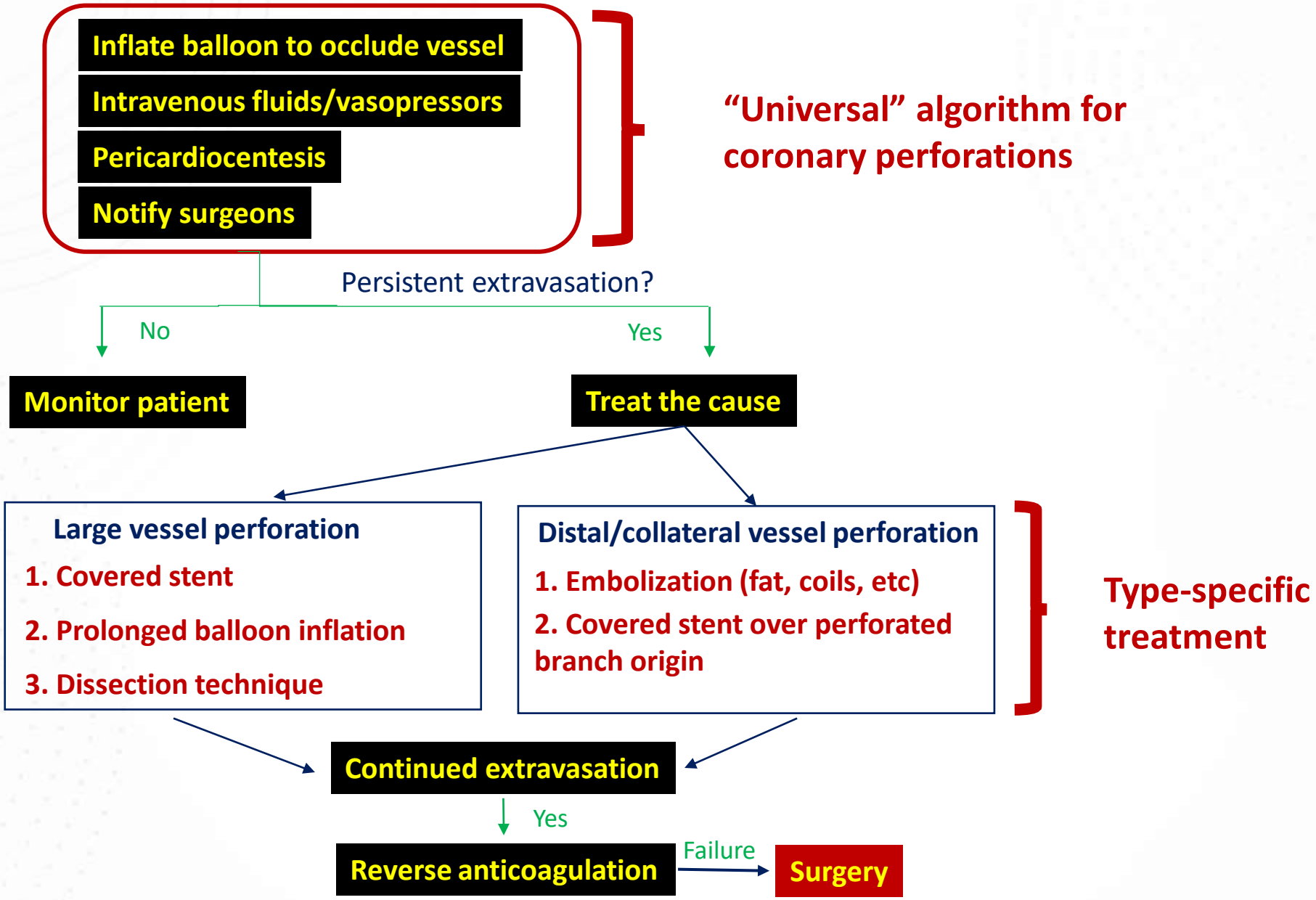
Disclosure

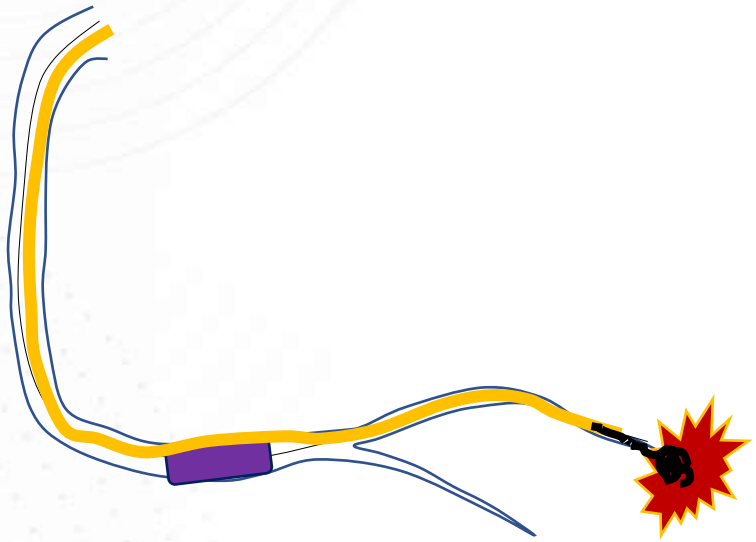
No conflict of interest to this presentation

Treatment algorithm for coronary perforations



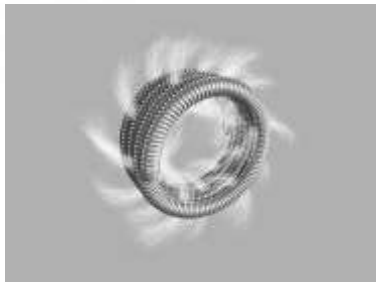
Treatment distal vessel perforation

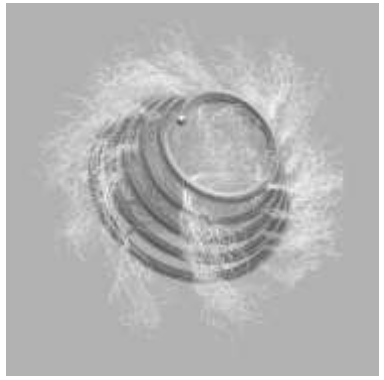
First step



1. Keep the wire when suspected distal perforation
2. Balloon tamponade for massive bleeding
3. Deliver second wire and micro catheter while balloon deflation and inflation
4. Coil embolization through the micro catheter

Embolic coils

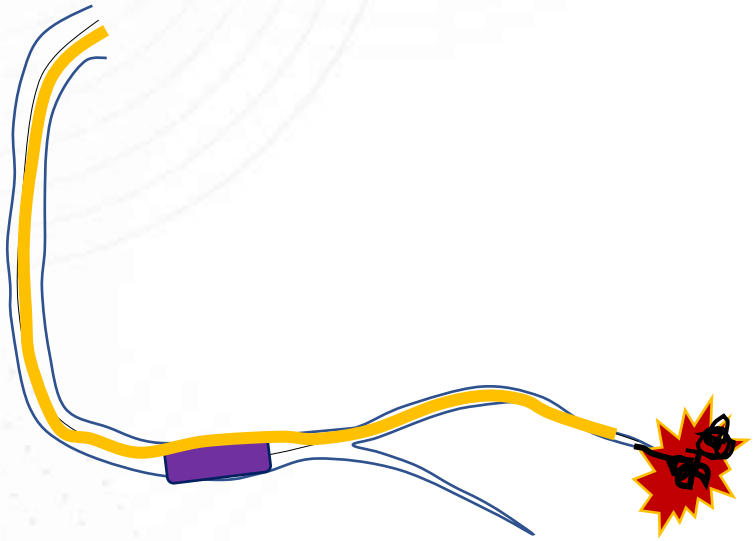


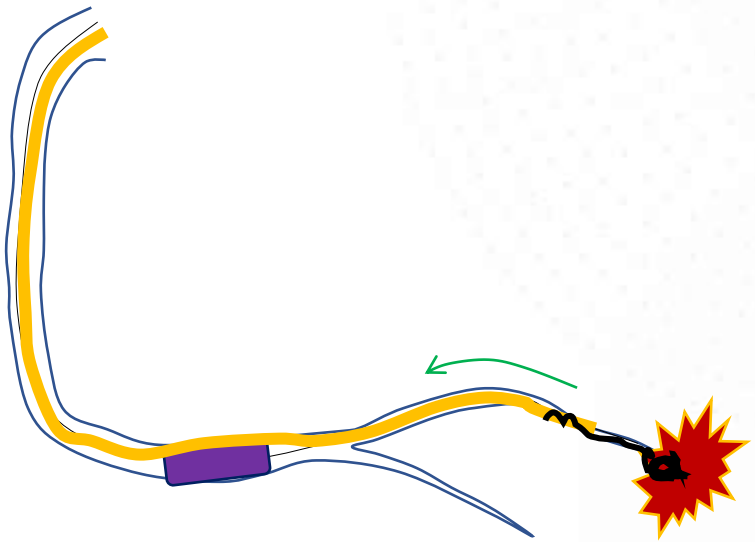


Cook embolization coils can not pass through Corsair and Corsair XS.

Treatment distal vessel perforation

Effective coiling



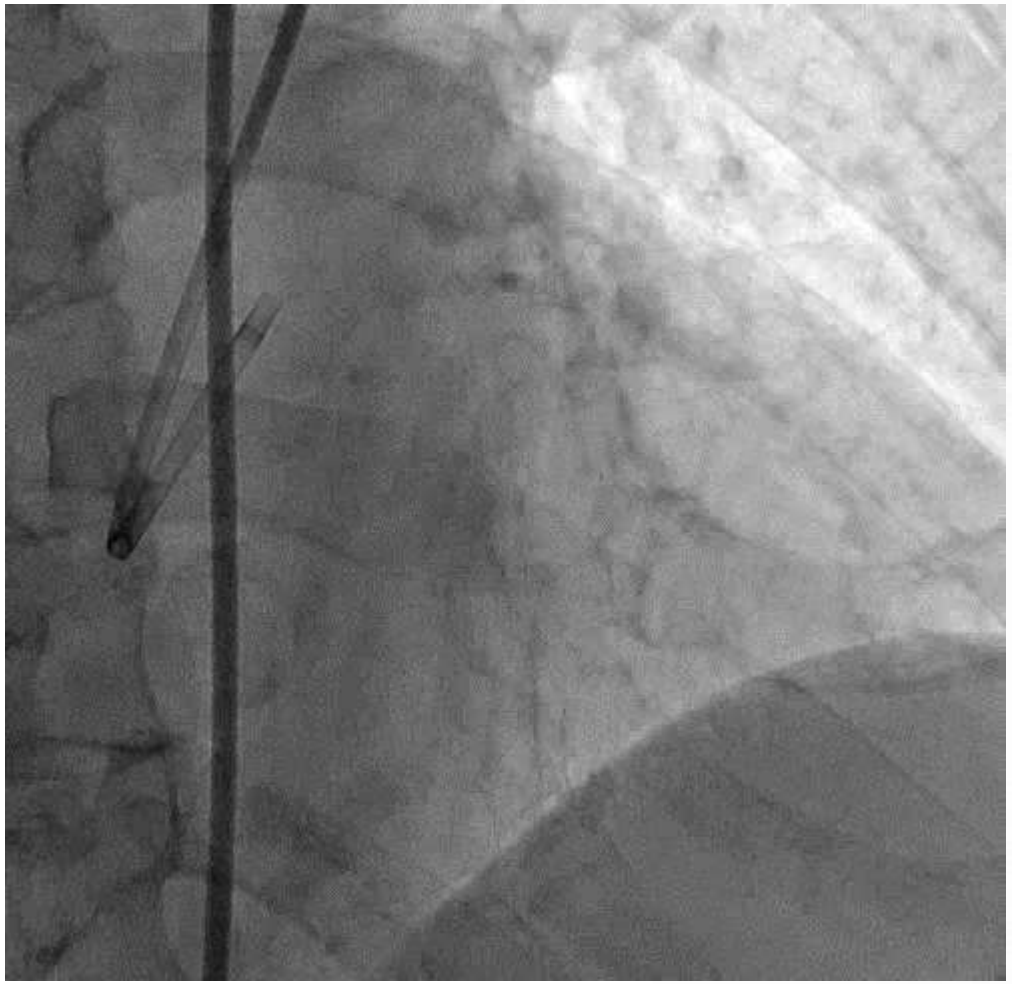


1. Don’t push the coil far distal
2. Coil will float in pericardial space
3. Gently push the embolic coil while draw the micro catheter slowly
4. There is some difficulty for precise placement in this kind of push-able coils

Terumo AZUR detachable coil

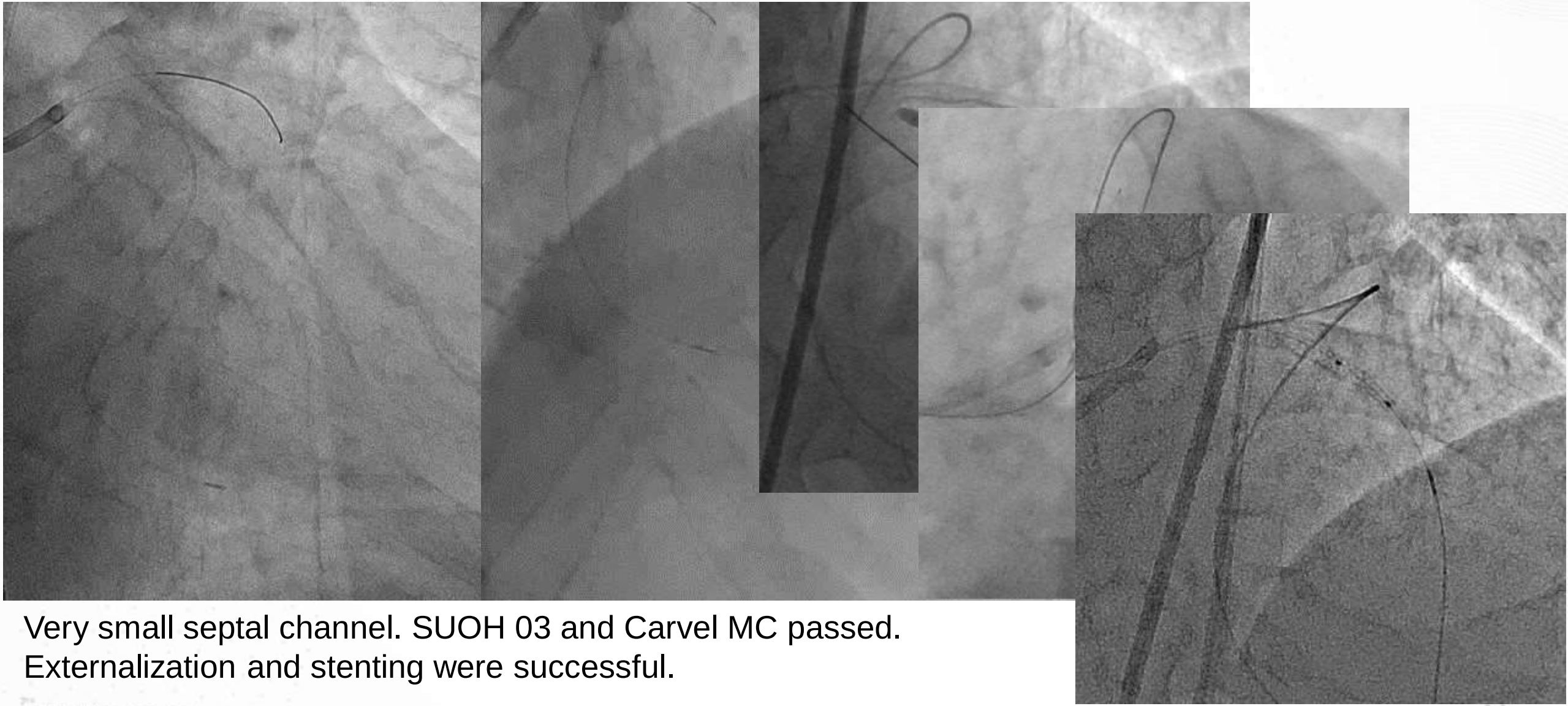
Precise coil embolization could be possible. Large diameter MC is required. Might be Impractical for small collateral perforations.

LAD CTO



LAD CTO. Heavy calcium at the entry.

Successful retrograde approach

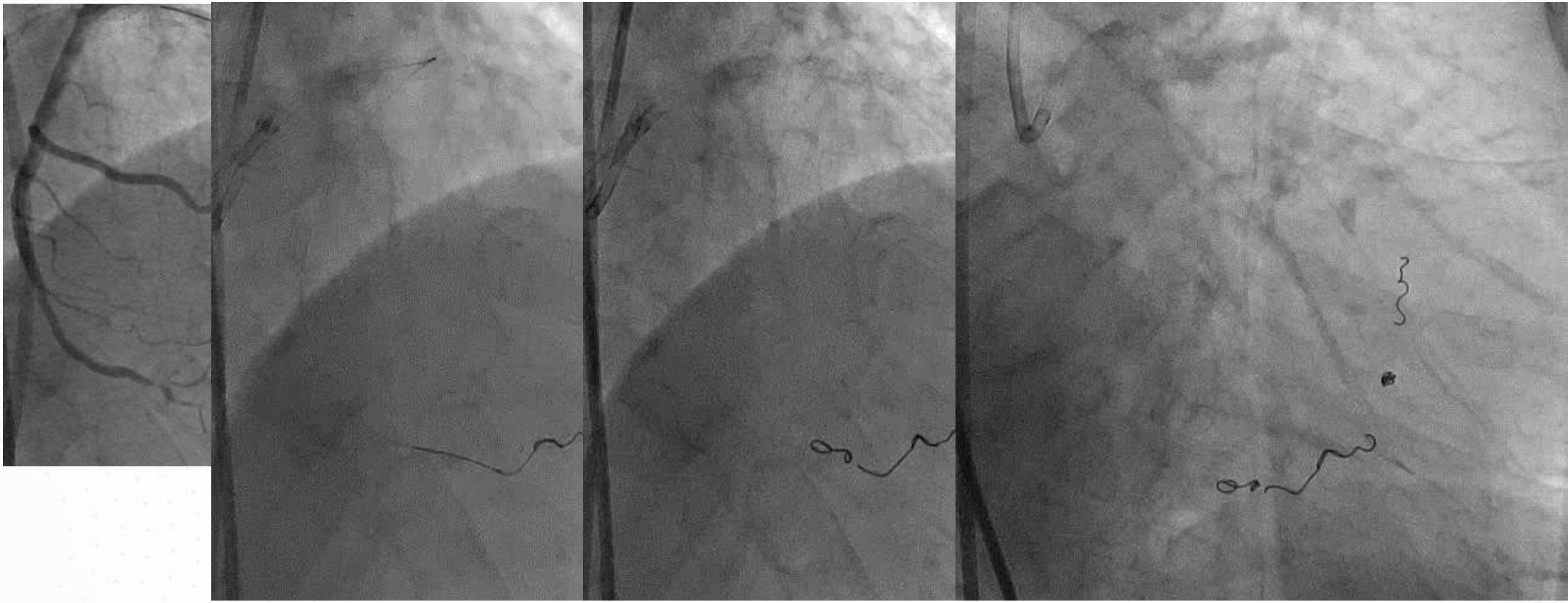


Very small septal channel. SUOH 03 and Carvel MC passed.
Externalization and stenting were successful.

Channel perforation

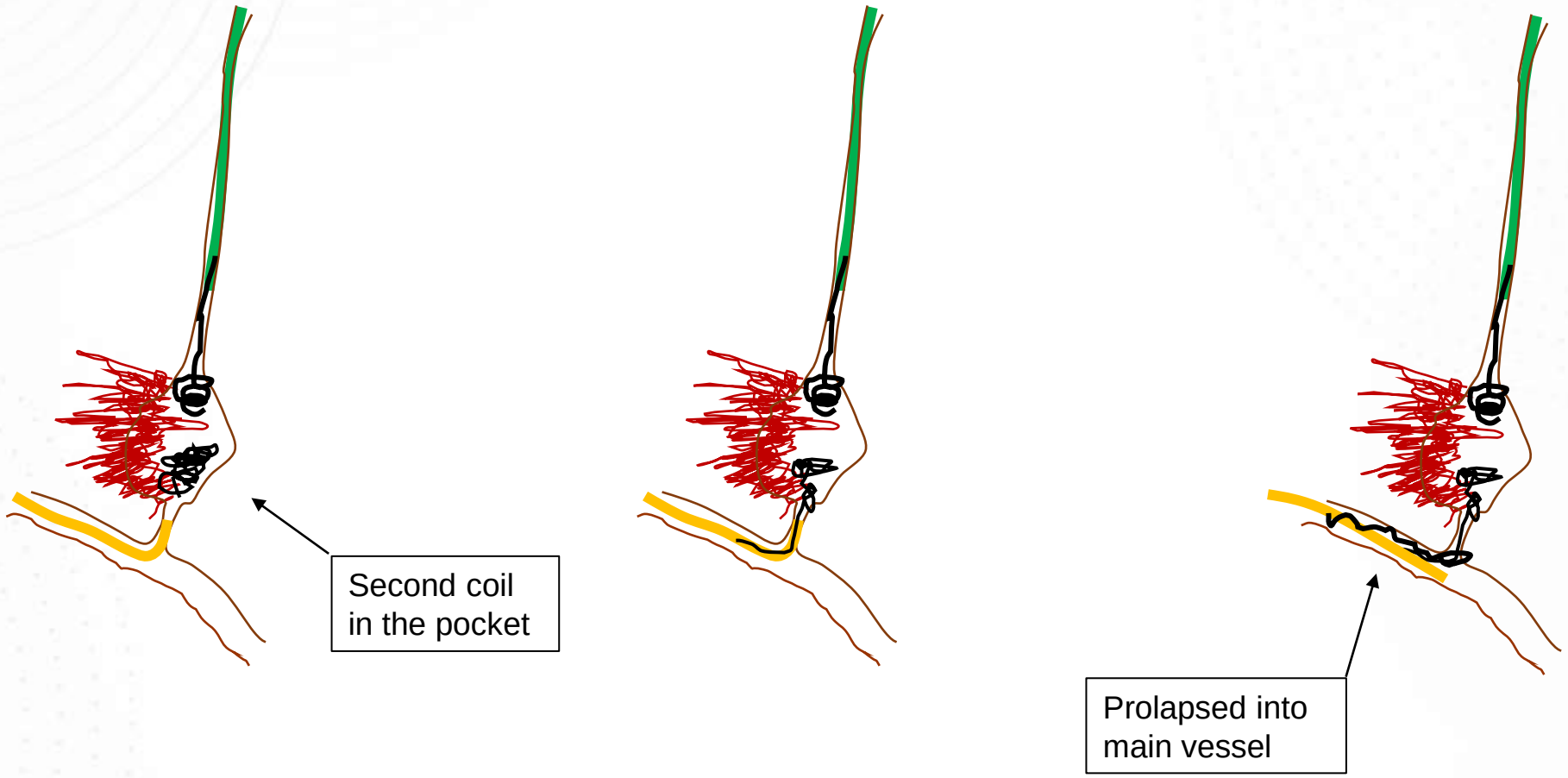
A large septal channel perforation occurred.

Multiple coiling



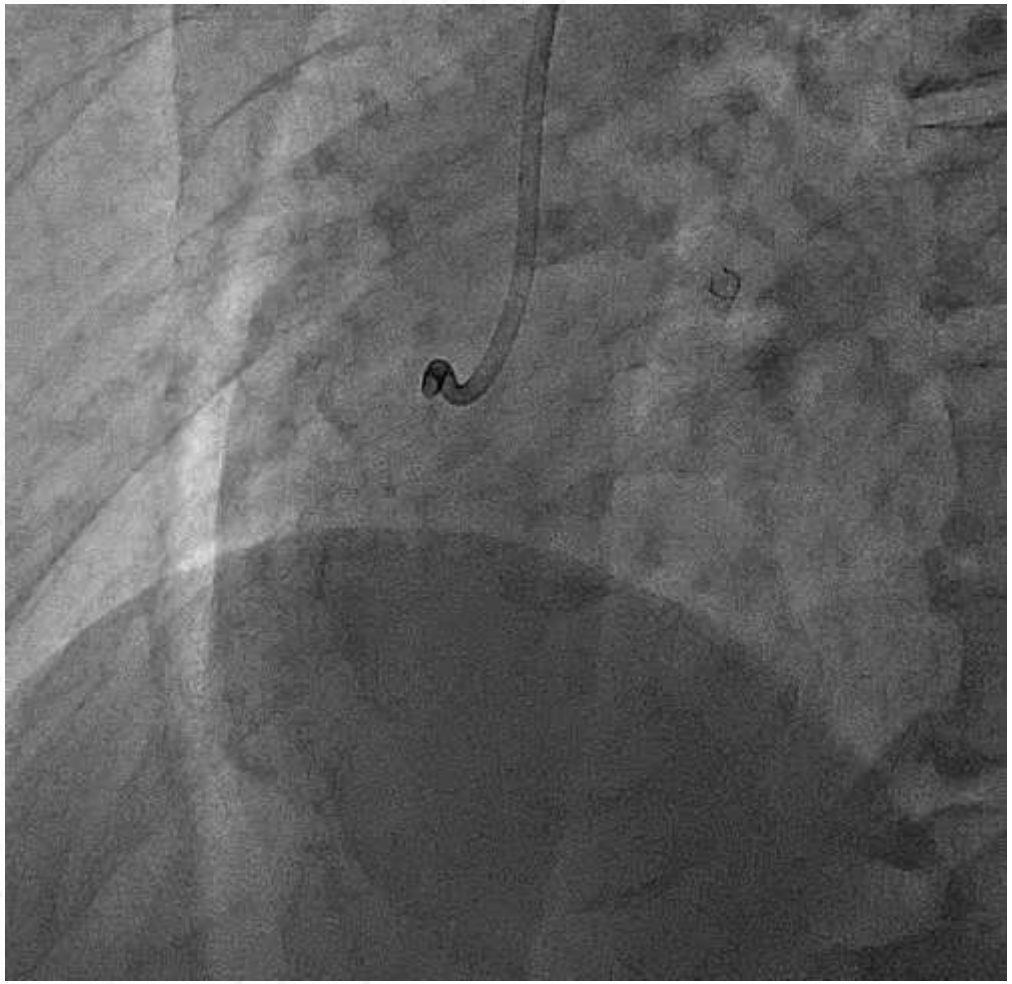
Successful coiling from LAD. Unstable MC position form RCA . Unsuccessful coiling from RCA. Third and forth coil are required. Finally prolapsed to main RCA.

Problem in this case



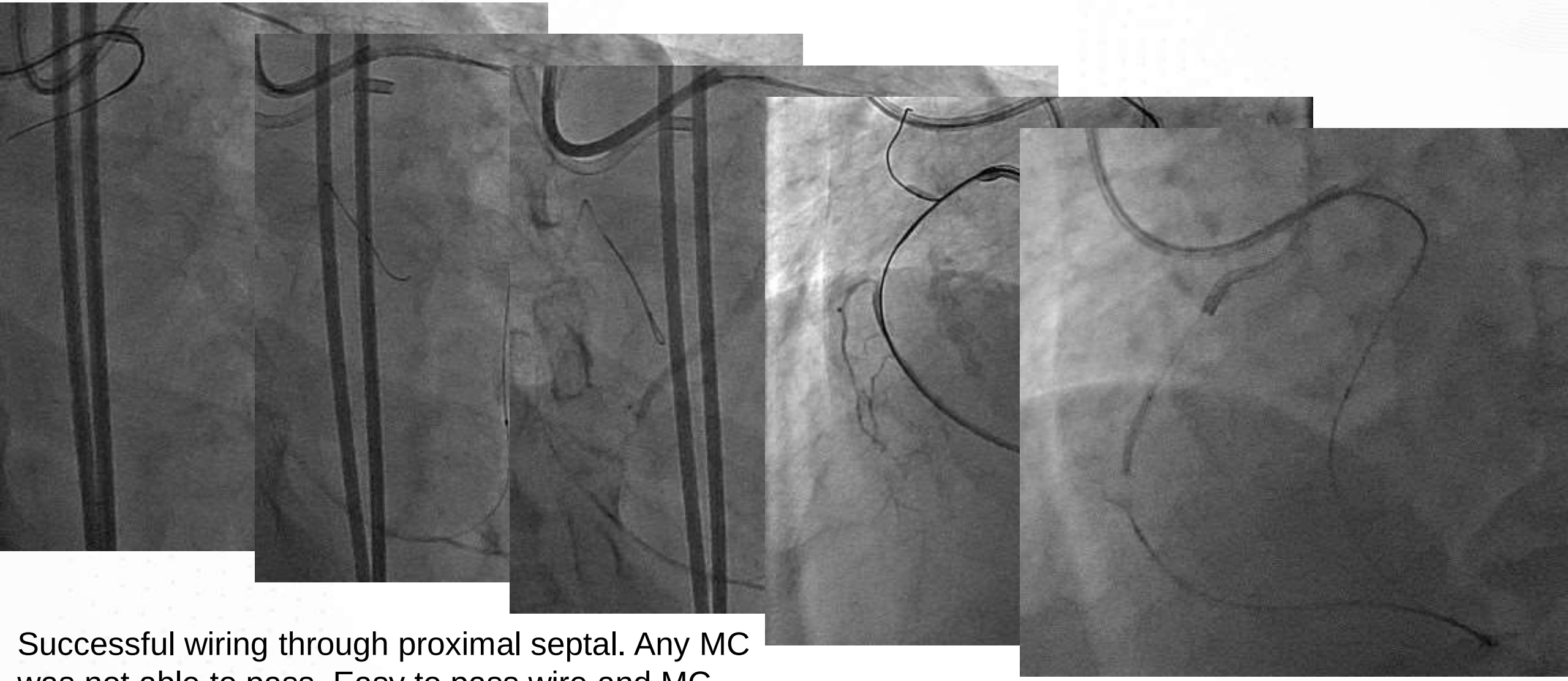
MC position is important. If the MC position is unstable, coiling is very difficult. It would be inserted into the perforation pocket (between LV and RV muscle layer), or prolapsed into the main vessel.

RCA CTO



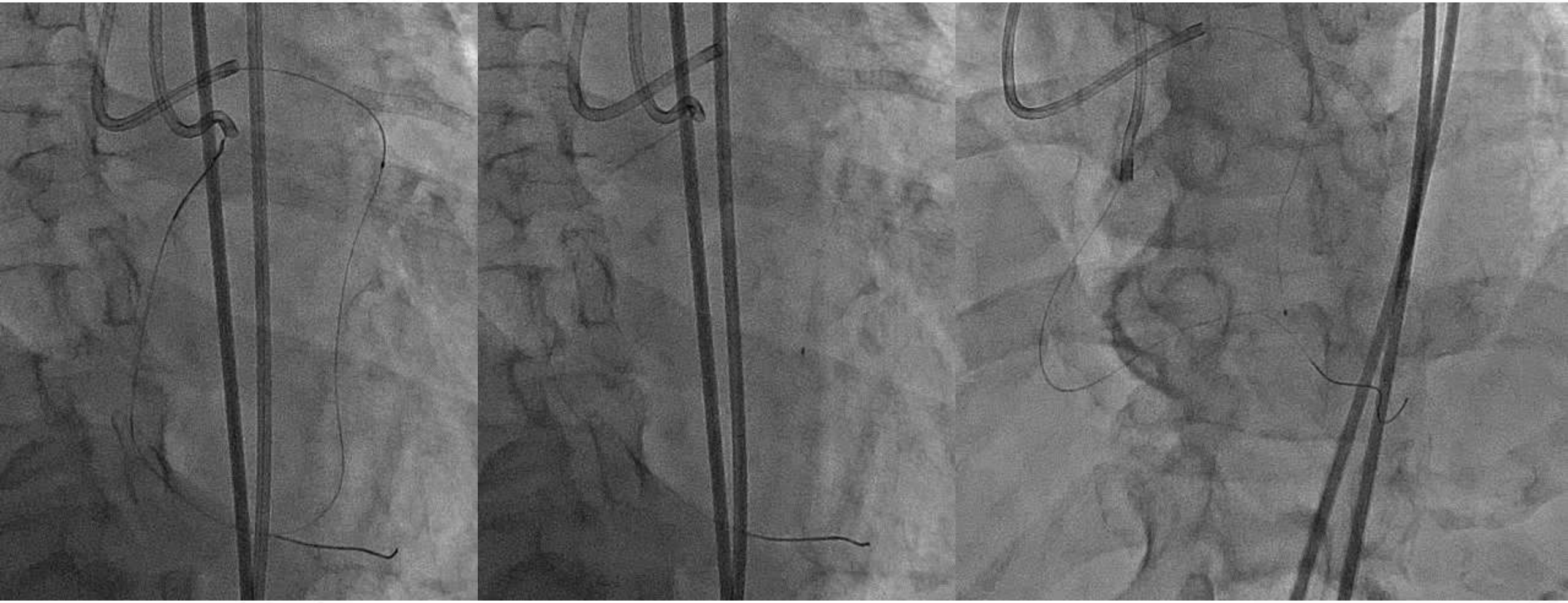
RCA CTO. Bridging collateral. Distal septal channel is bigger than proximal, however several bending sites.

Septal channels



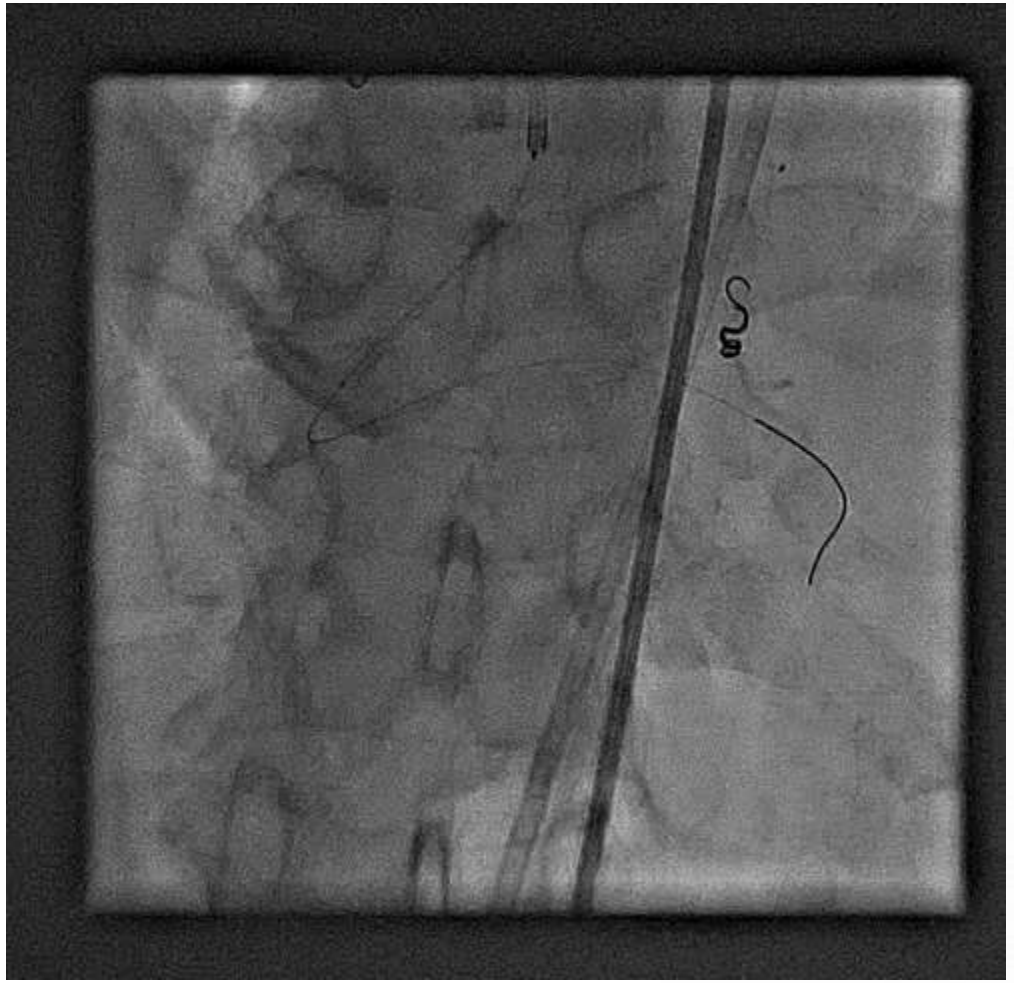
Successful wiring through proximal septal. Any MC was not able to pass. Easy to pass wire and MC through distal septal. Successful recanalization.

Septal perforation



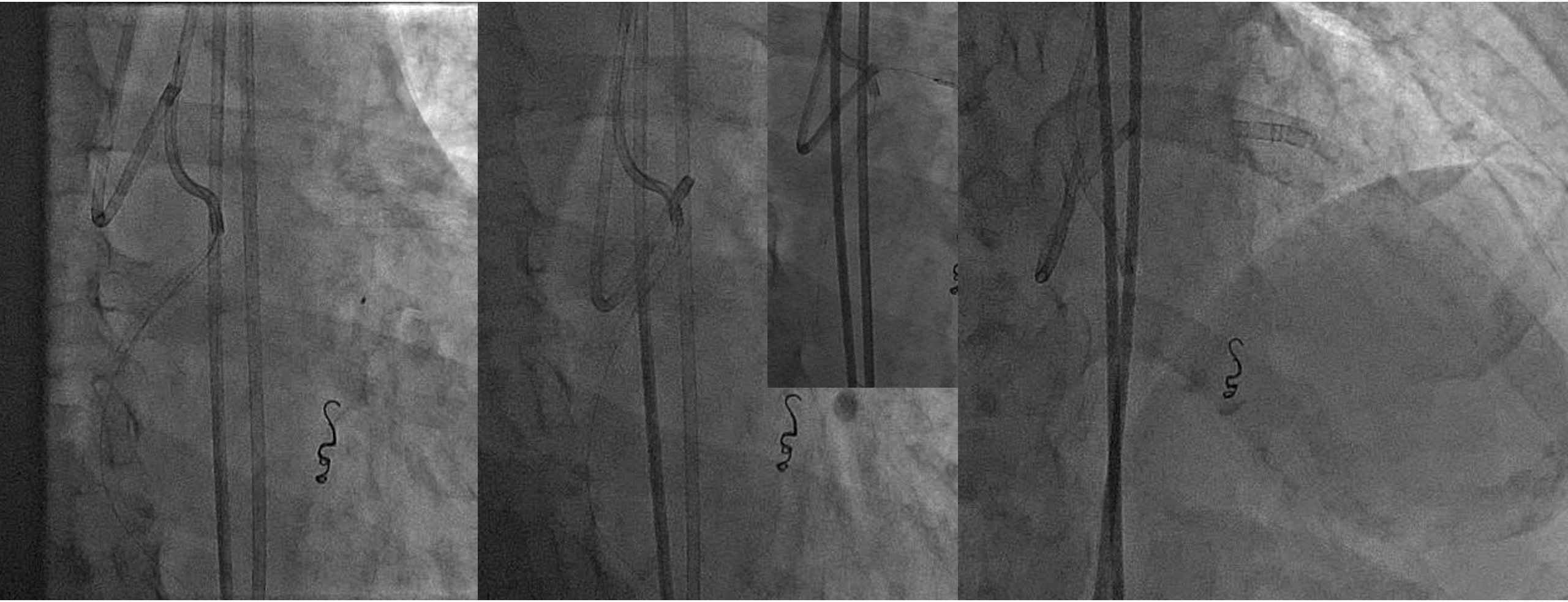
Proximal septal perforation was not clear during wire in place. Contrast injection from MC clearly see the perforation. Insert MC from the RCA is impractical. Balloon occlusion at the origin septal channel.

Ballooning and coiling



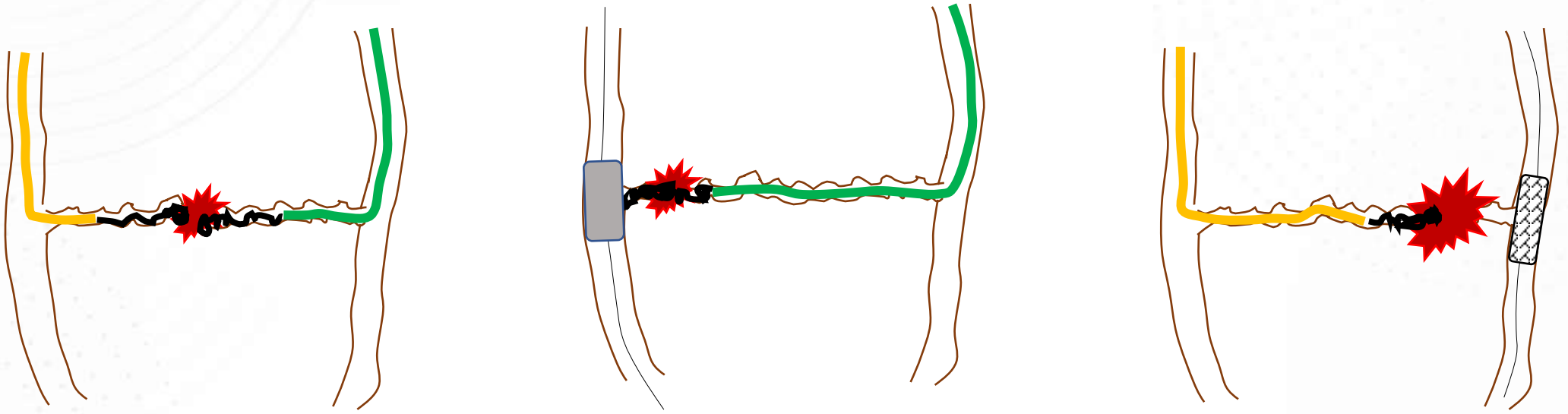
. Balloon occlusion at the origin septal channel. Coiling from the LAD.

Covered stent



Big septal perforation remined. Disengaged LCA guide. Reengaging LCA guide. Stop bleeding as quickly possible. Covered stent implanted at the origin of the septal. Successful stop bleeding.

Treatment for collateral perforation



Bidirectional coiling is common. Several options regarding to the perforation site. Distal site perforation while wire in place, coiling from distal that bridge perforation site would be successful. For the proximal perforation, the channel diameter is so big that coiling might be ineffective. Covered stent is a solution for successful stop bleeding.

Septal hematoma

ESC European Society of Cardiology

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CASE REPORT
Coronary heart disease

A case report of right ventricular compression from a septal haematoma during retrograde coronary intervention to a chronic total occlusion

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Proximal septal hematoma may cause RV outflow compression and collapse.

Two types of covered stent

Jostent Graftmaster
Traditional sandwich stent design

PK Papyrus
Covered single stent design

We can use two types of covered stent. We can choose them depend on their deliverability and its mounting pressure.

Conclusions

Coronary perforation is the most frequent problem during CTO PCI.

Embolic coil is frequently used for distal vessel and collateral perforations. Appropriate coiling is required depending on the site and morphology of the perforation.