Sneaking hematoma after PCI because of…

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Interventional Cardiology Unit
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74 year-old, female

- **Chief complaint**:

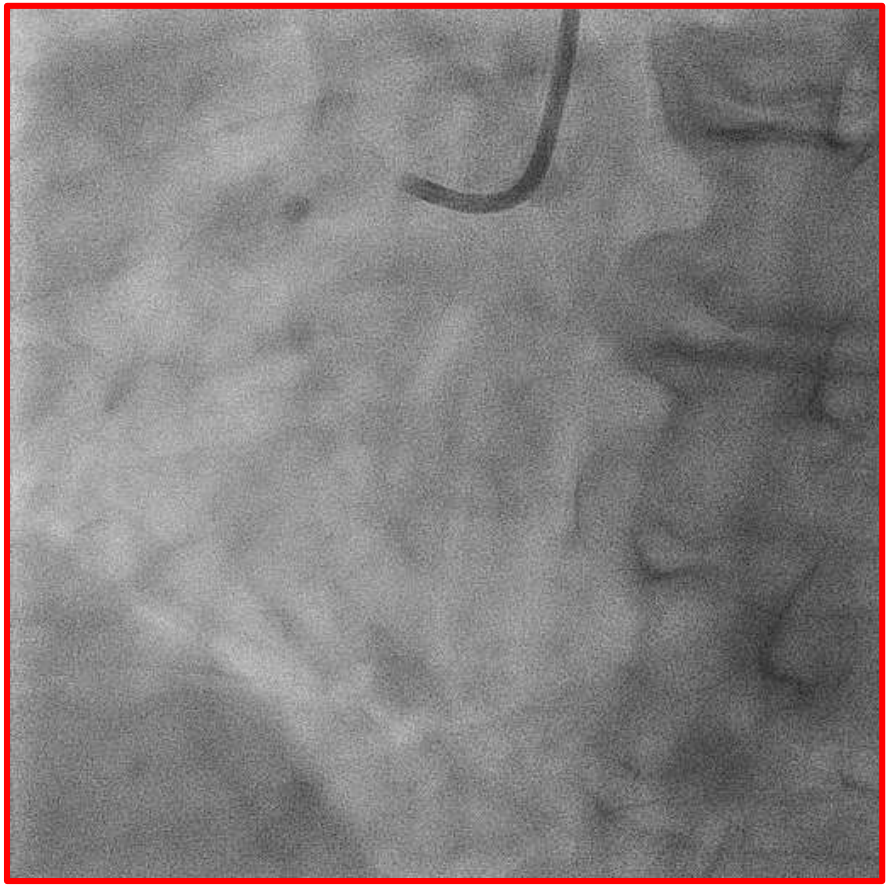
  Shortness of breath

- **Coronary risk factor**:DL, DM
- **ECG**: Af, ST depression
- **EF**:65.8%

- **Previous Intervention**: none

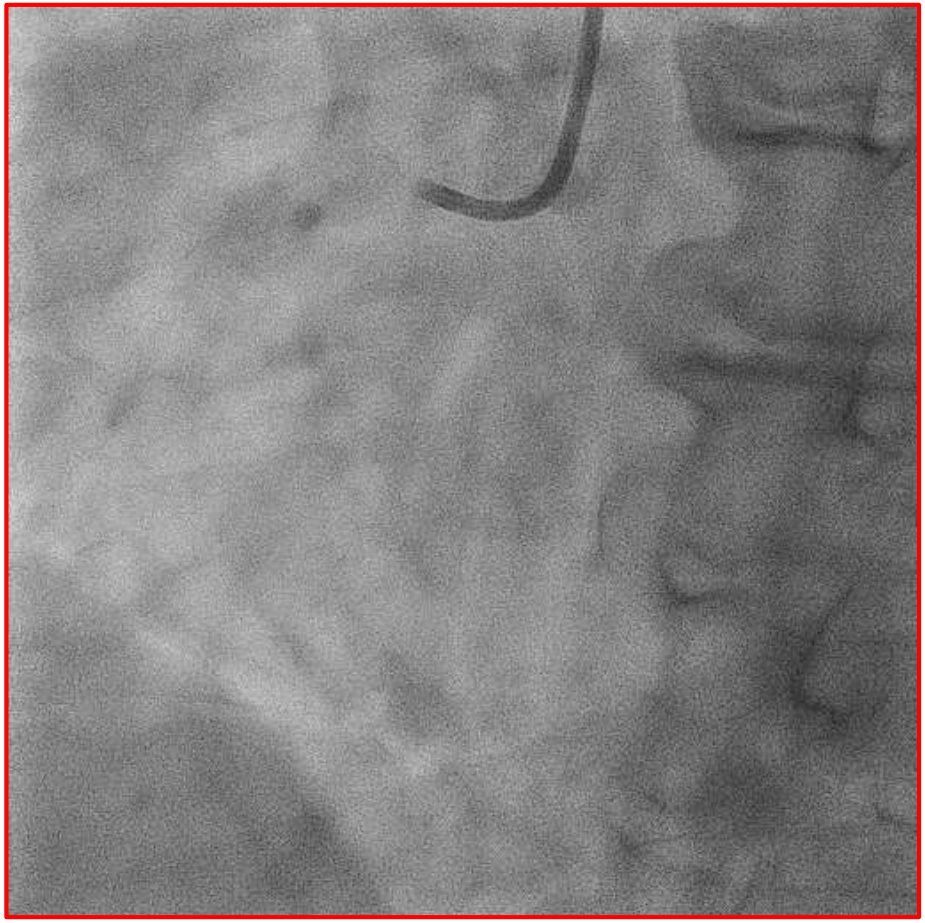
- CAG revealed

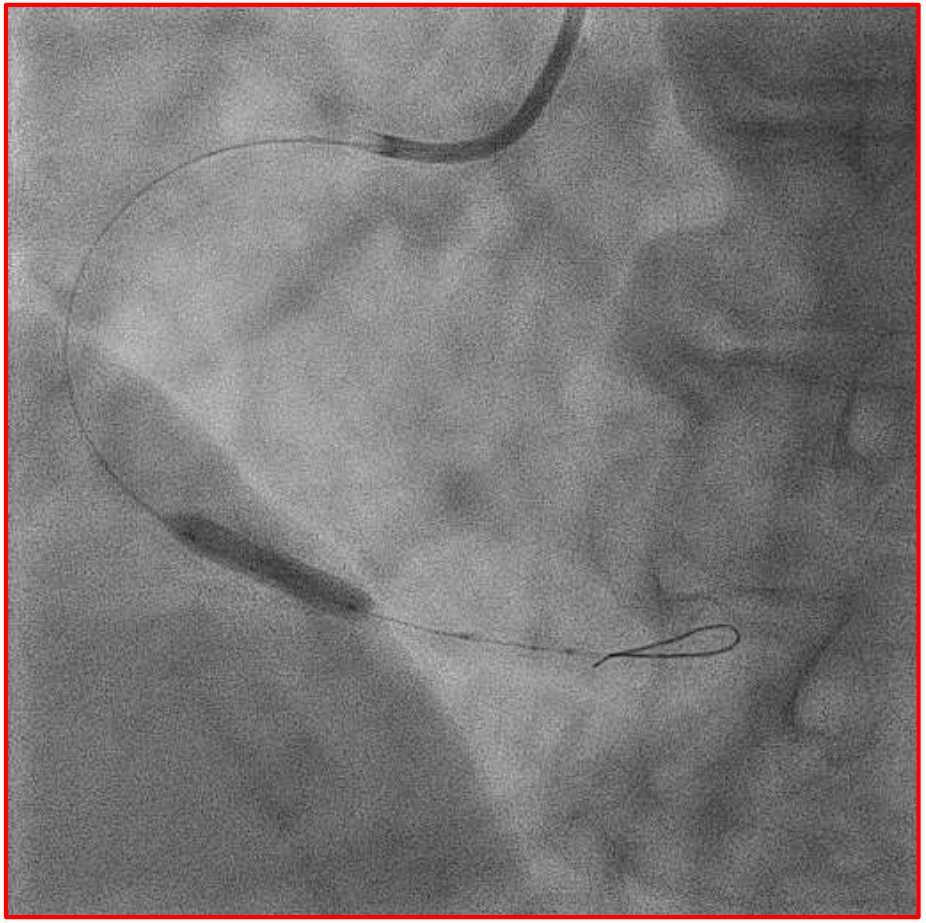
  RCA 99% stenosis



RCA PCI

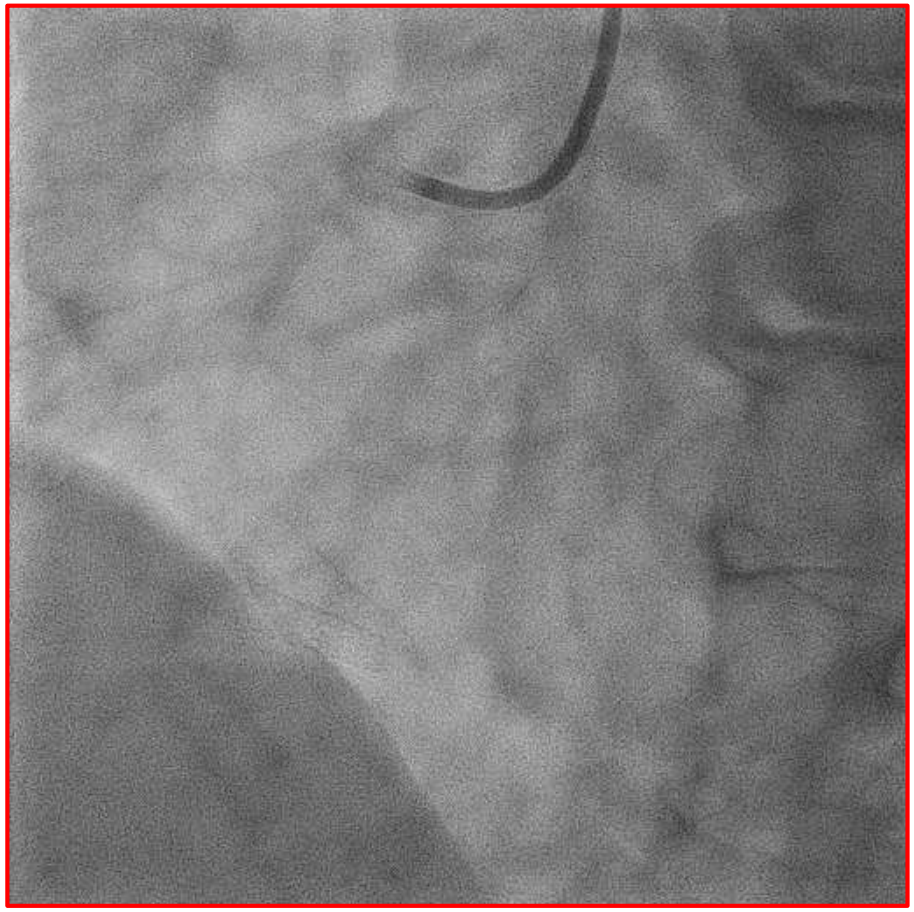
- Following crossing a wire and exchanging distal protection device(Filtrap), predilatation with 3.0 mm balloon was performed.

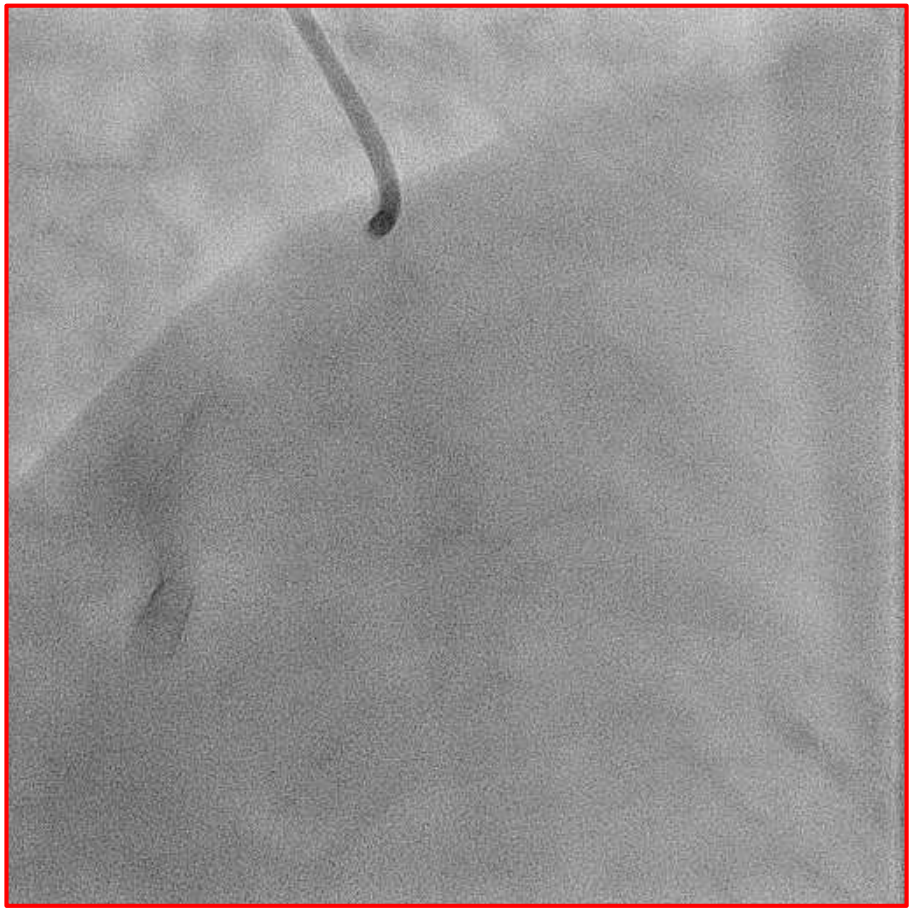




RCA PCI

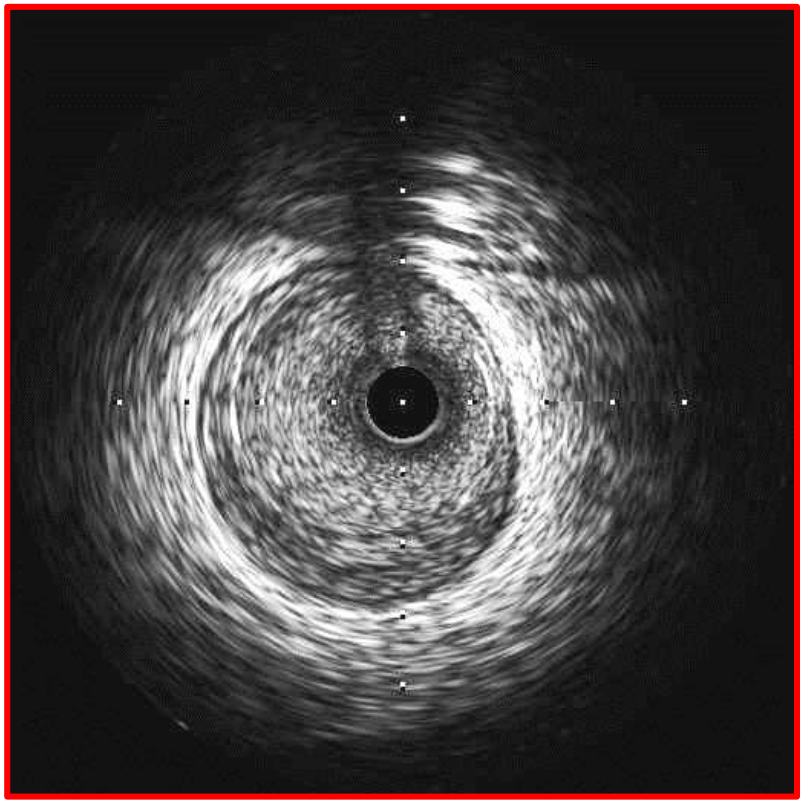
- A 4.0×15 mm Zotarolimus-eluting stent (Resolute Onyx) was implanted followed by postdilatation with 4.5 mm non-compliant balloon.

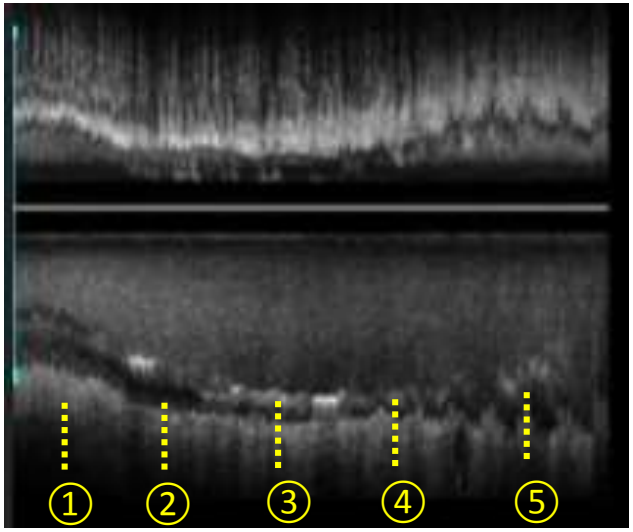


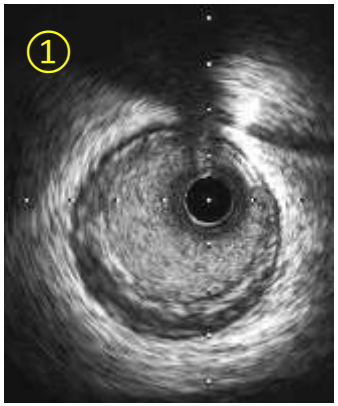


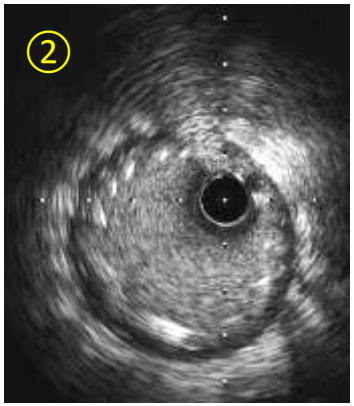
Post-Procedural IVUS

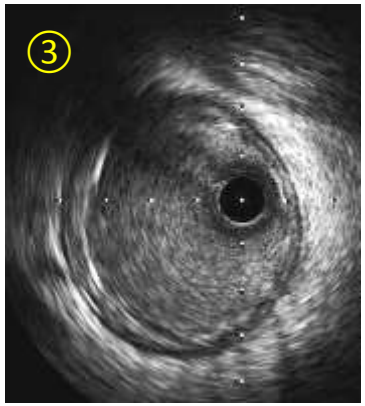
- Post procedural IVUS showed well stent expansion and no edge dissection.

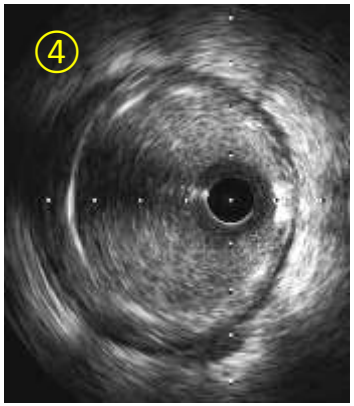


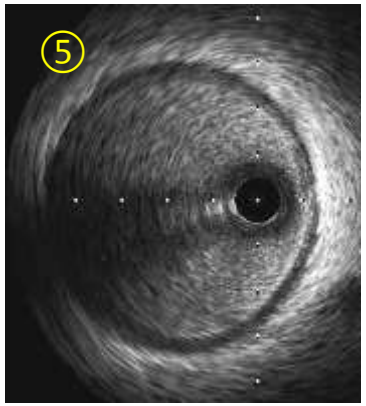






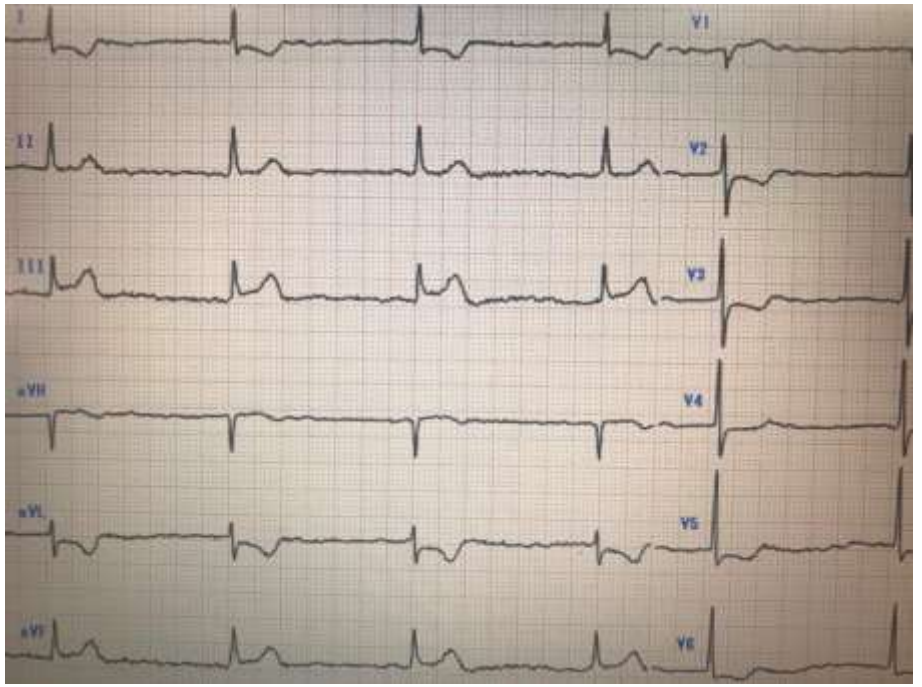






After PCI Procedure...

- After returning to ward, she had chest pain and bradycardia.
- ECG showed ST elevation on the inferior leads.
- Emergency CAG was performed…

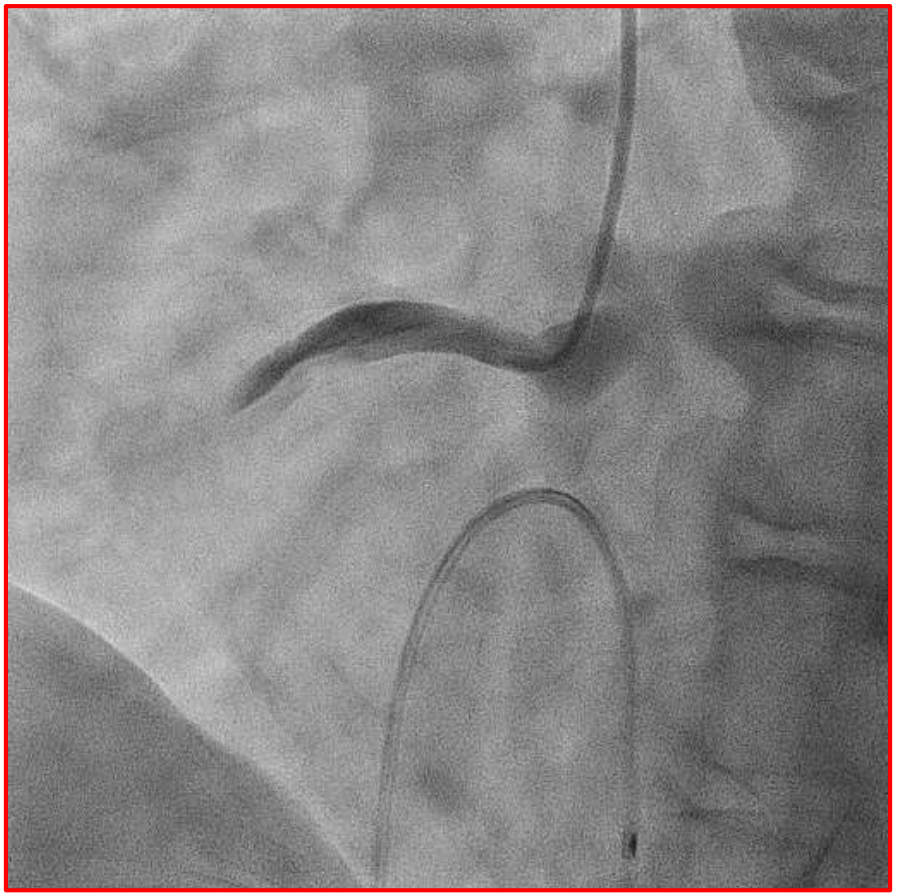


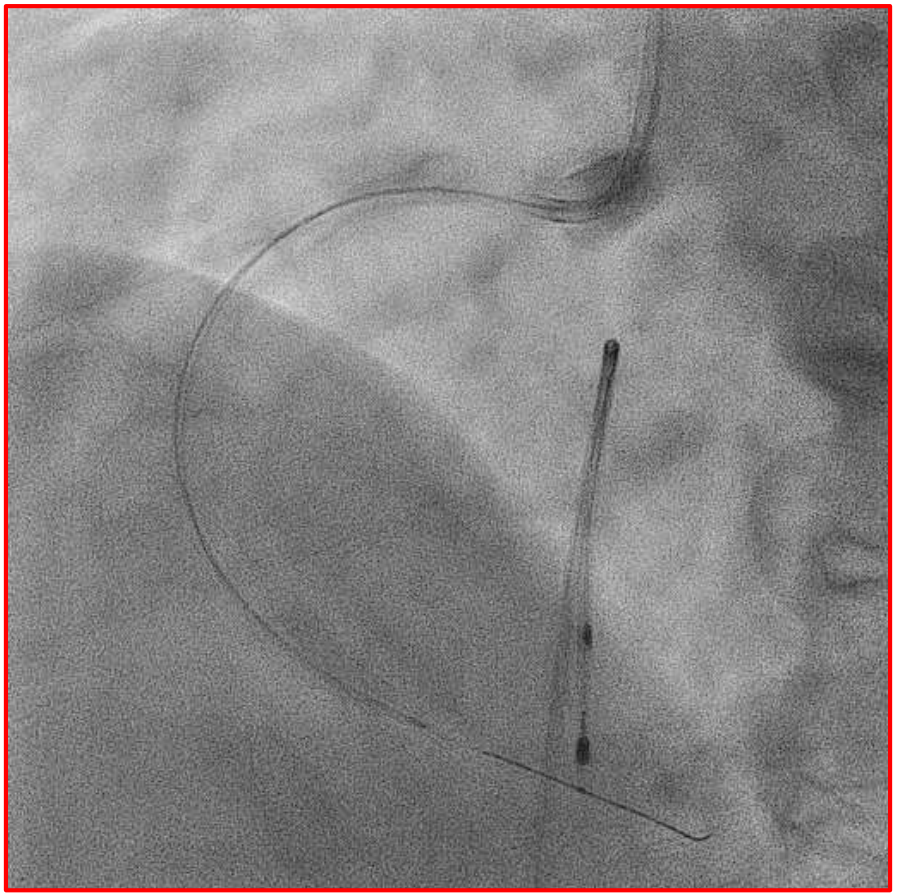
What's happen??

- Stent thrombosis ?
- Edge dissection ?
- Hematoma ?

Re-CAG/PCI

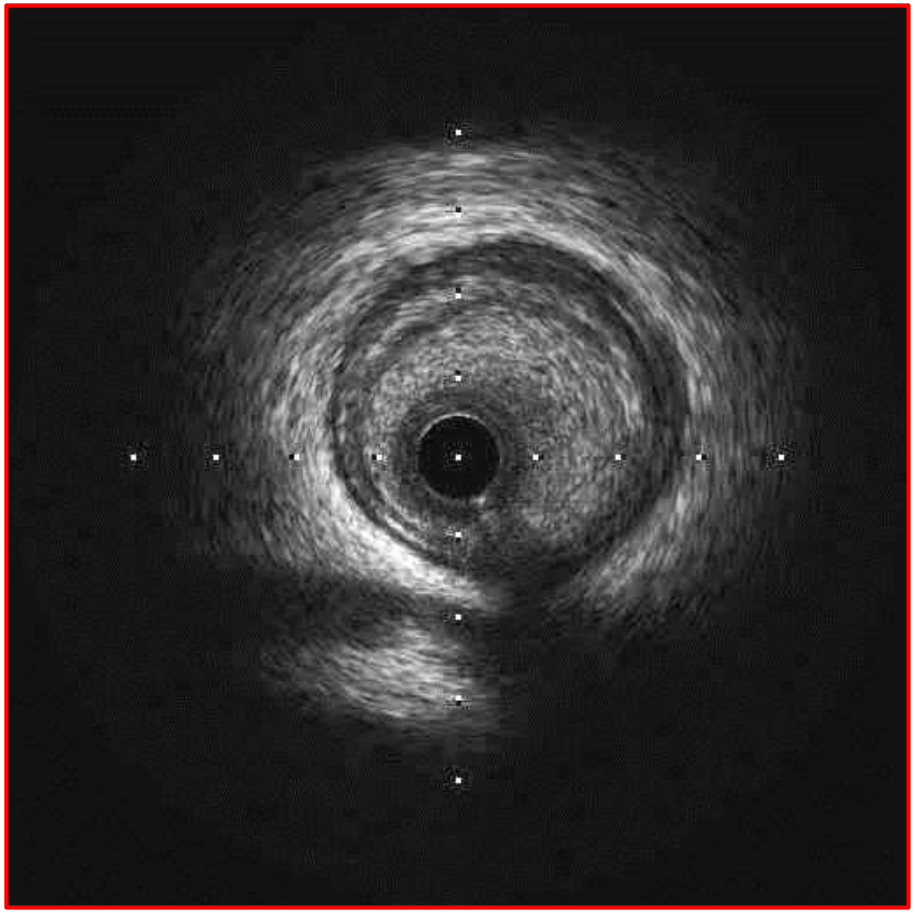
- Angiogram revealed the dissection of proximal RCA. Following crossing of a wire into the true lumen, IVUS was performed.

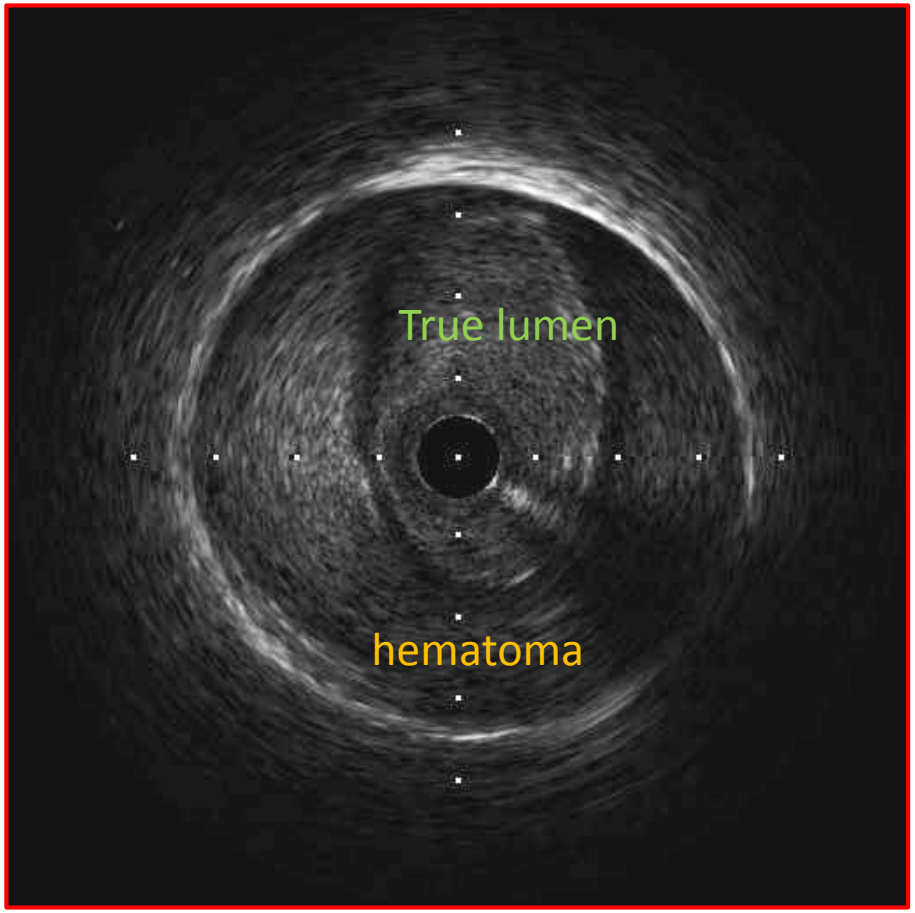




IVUS findings

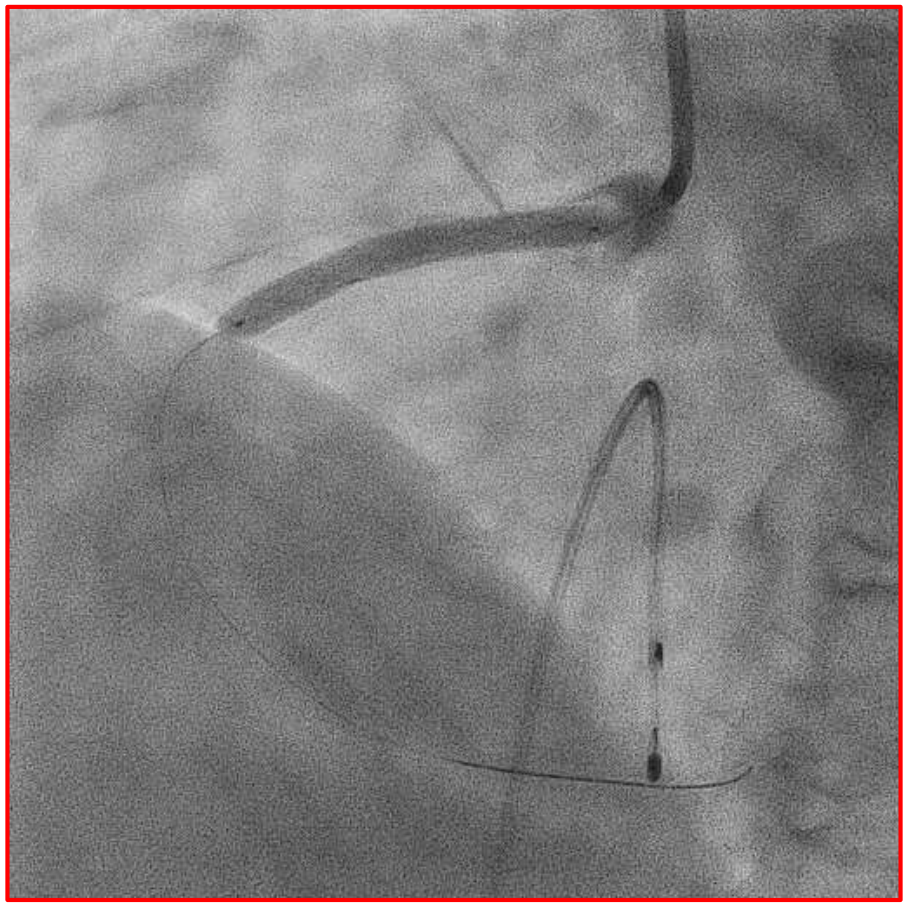
- IVUS showed the coronary dissection and hematoma from the RCA ostium to proximal part of the stent .

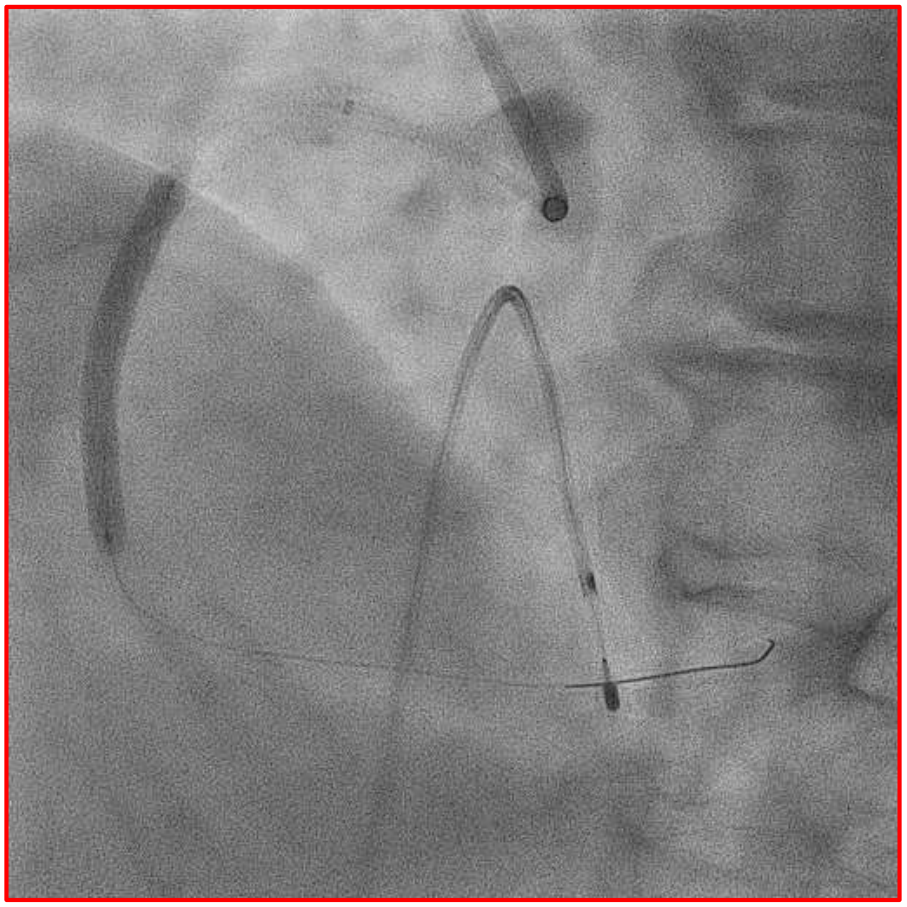




Re-PCI

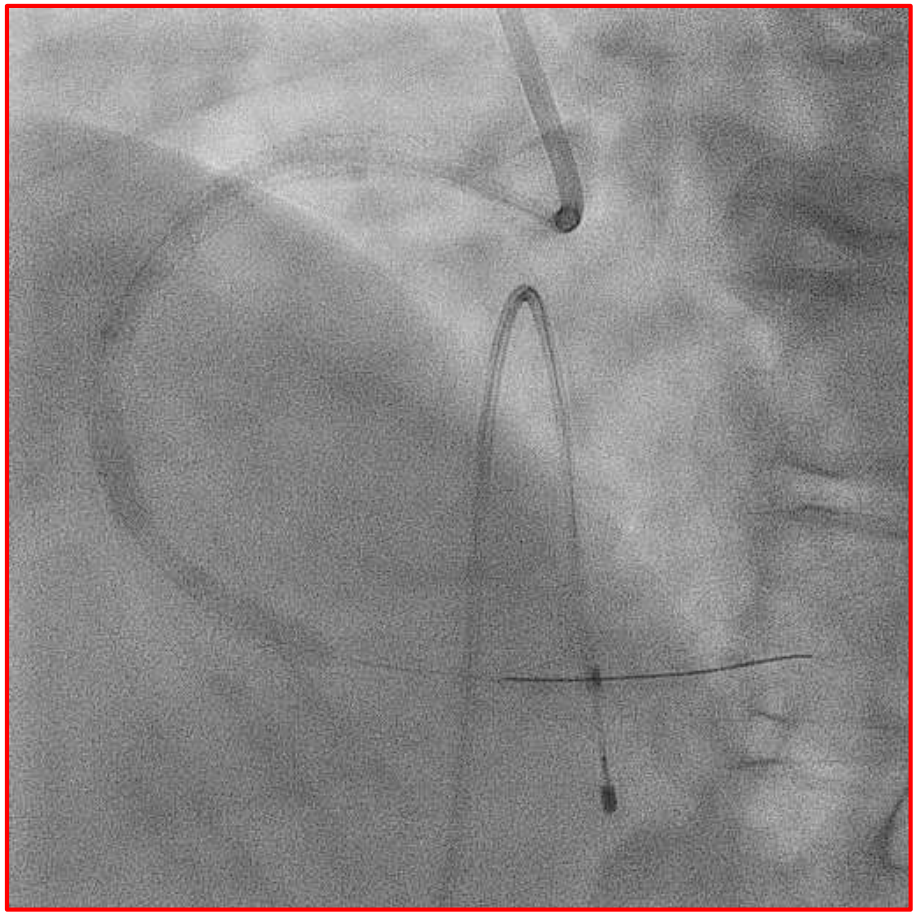
- A 4.0×38 mm Zotarolimus-eluting stent (Resolute Onyx) was implanted in the proximal part of RCA. After that, a 4.0×38 mm Zotarolimus-eluting stent was implanted in the mid of RCA.

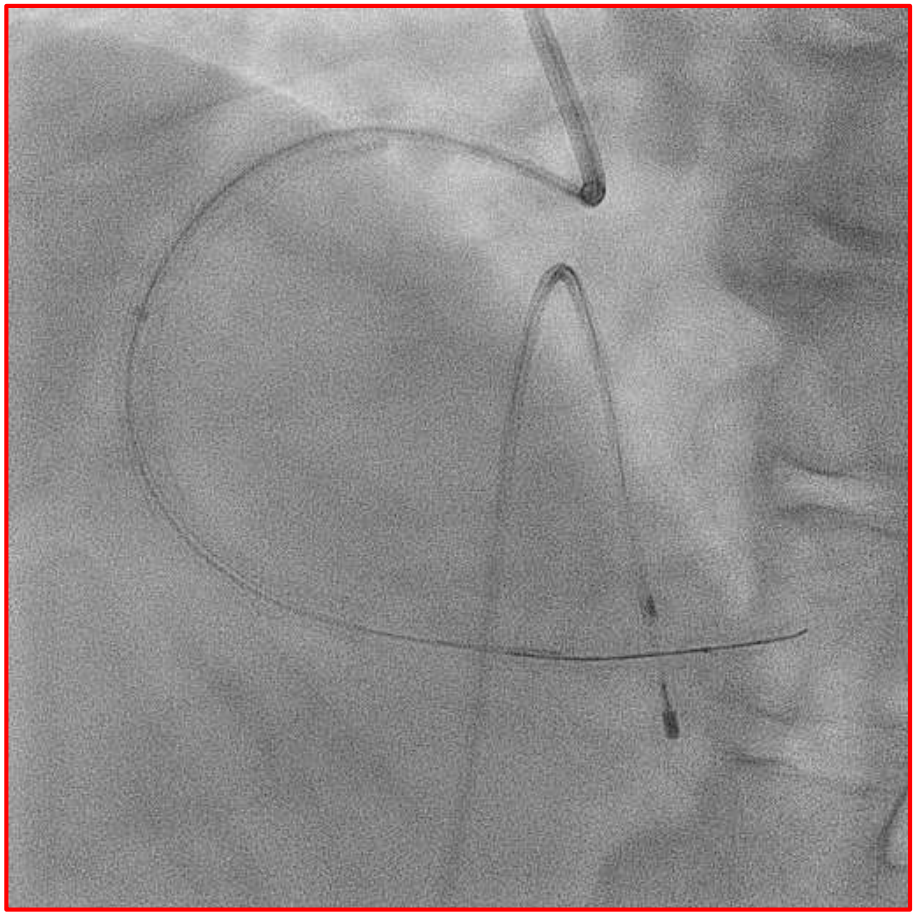




Re-PCI

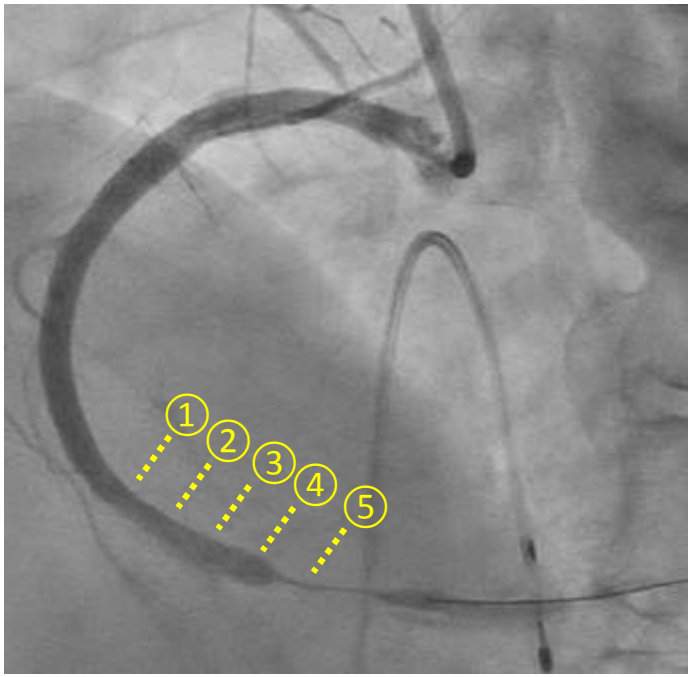
- Following implantation of stent, angiogram showed severe stenosis in the distal part of the stent. We performed IVUS.

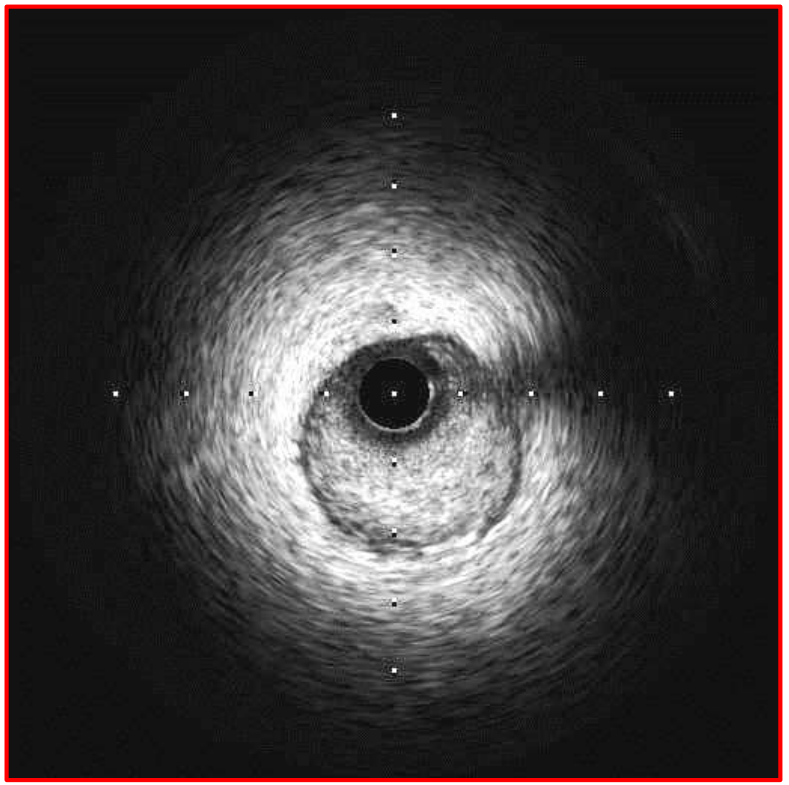


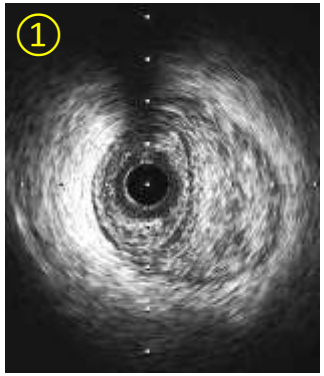


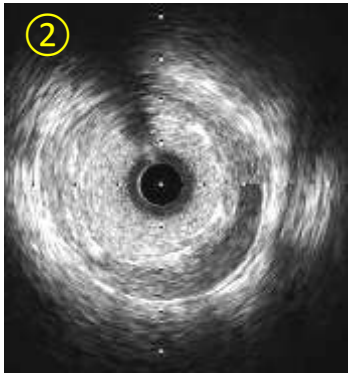
IVUS findings

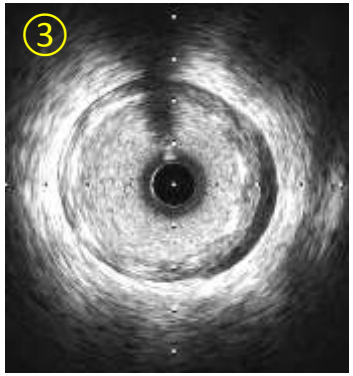
- IVUS revealed that progression of hematoma to the stent distal vessel.

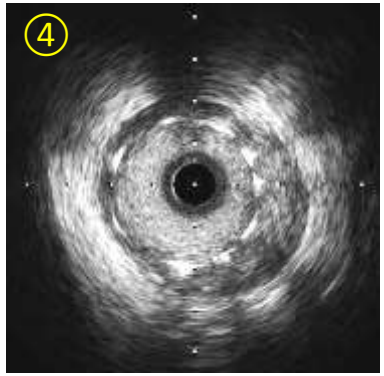


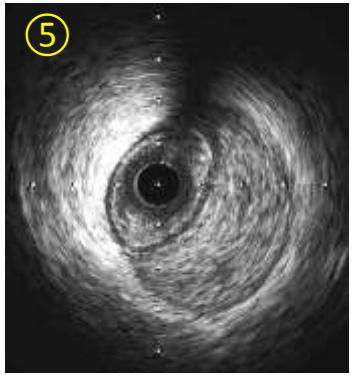






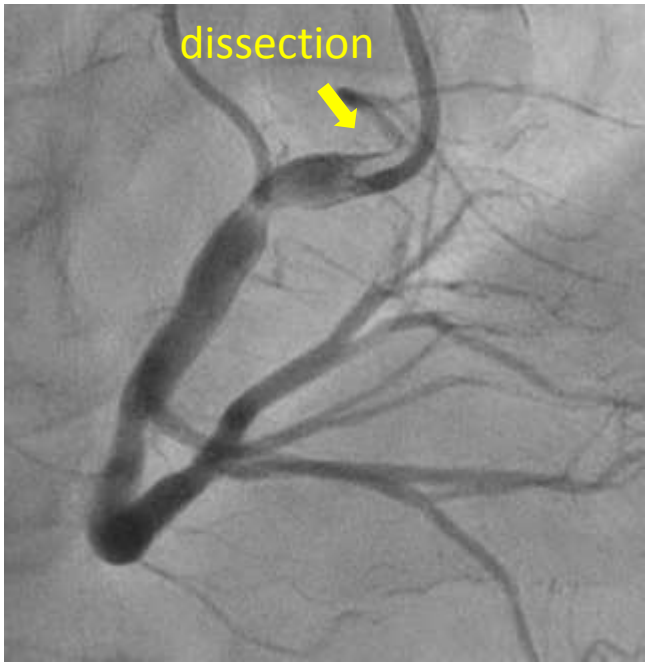


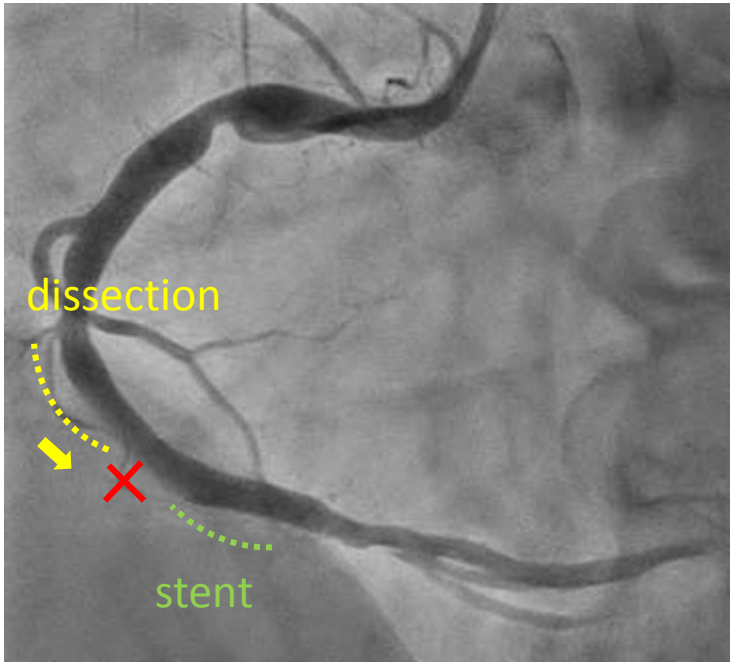




Why was the hematoma going down to the stent distal?

- In this case, dissection was happened in the RCA ostium and propagated to the distal part.
- Normally, hematoma stops propagating in the proximal stent edge because of stent expansion.

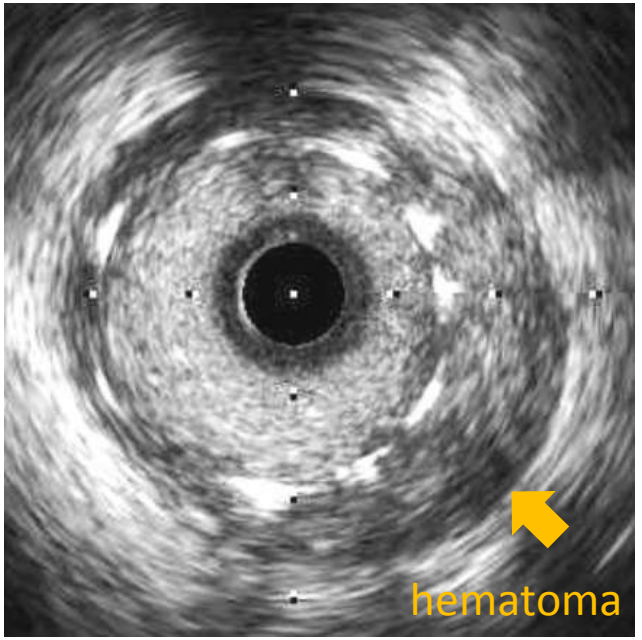


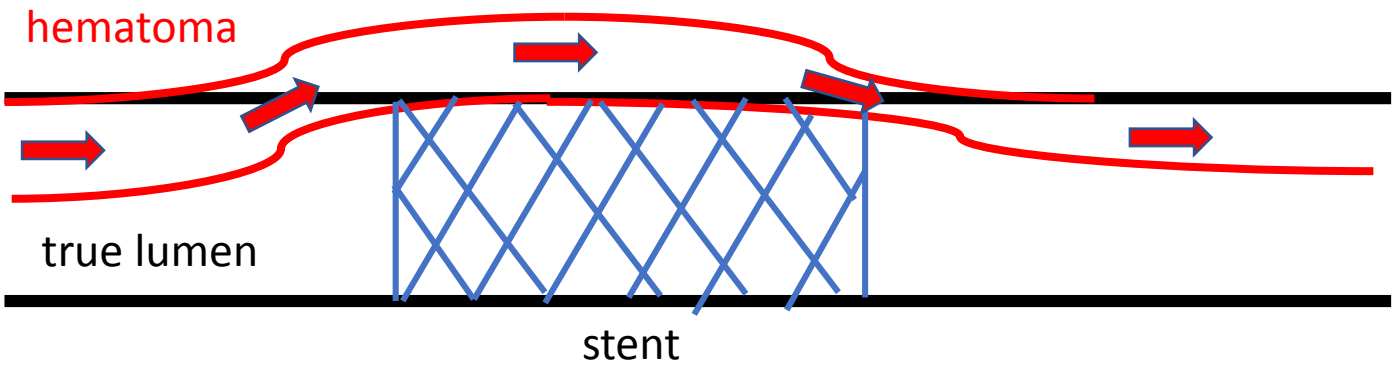


Why was the hematoma going down to the stent distal?

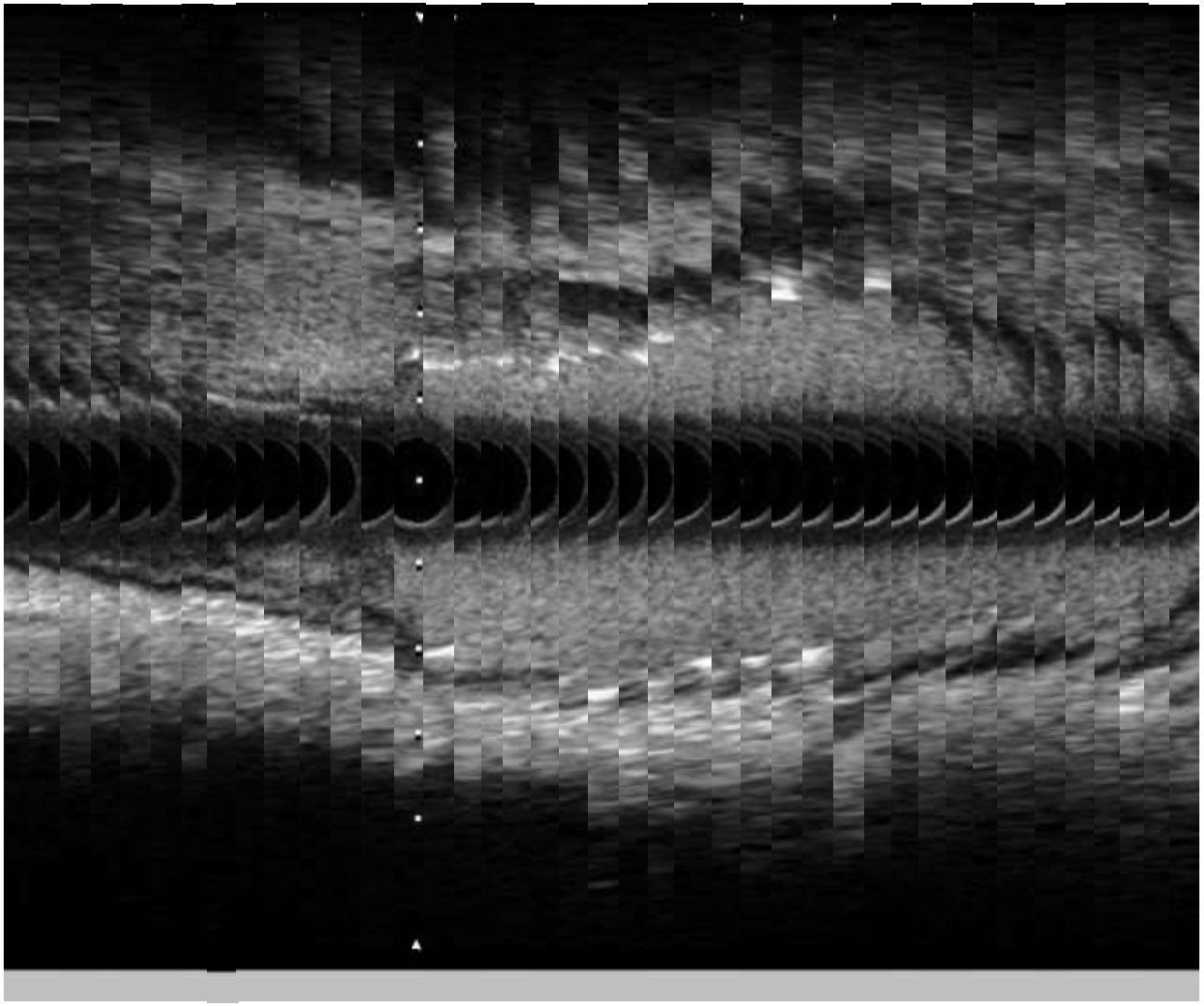
- In this case, though complete stent apposition and expansion were confirmed by post procedural IVUS, hematoma propagated to the distal part of stent.

- IVUS showed hematoma is considered to propagate in the outside part of stent.

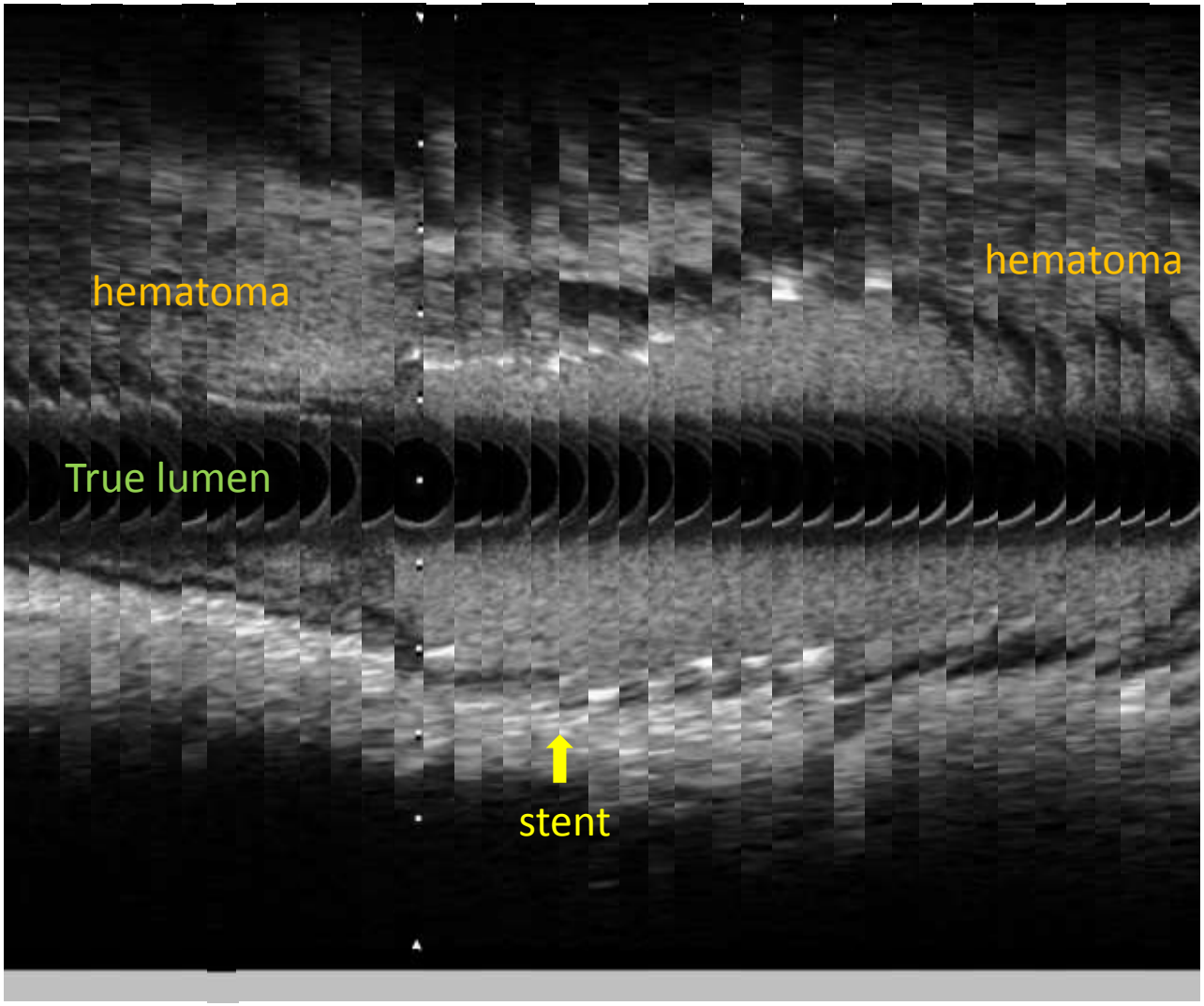




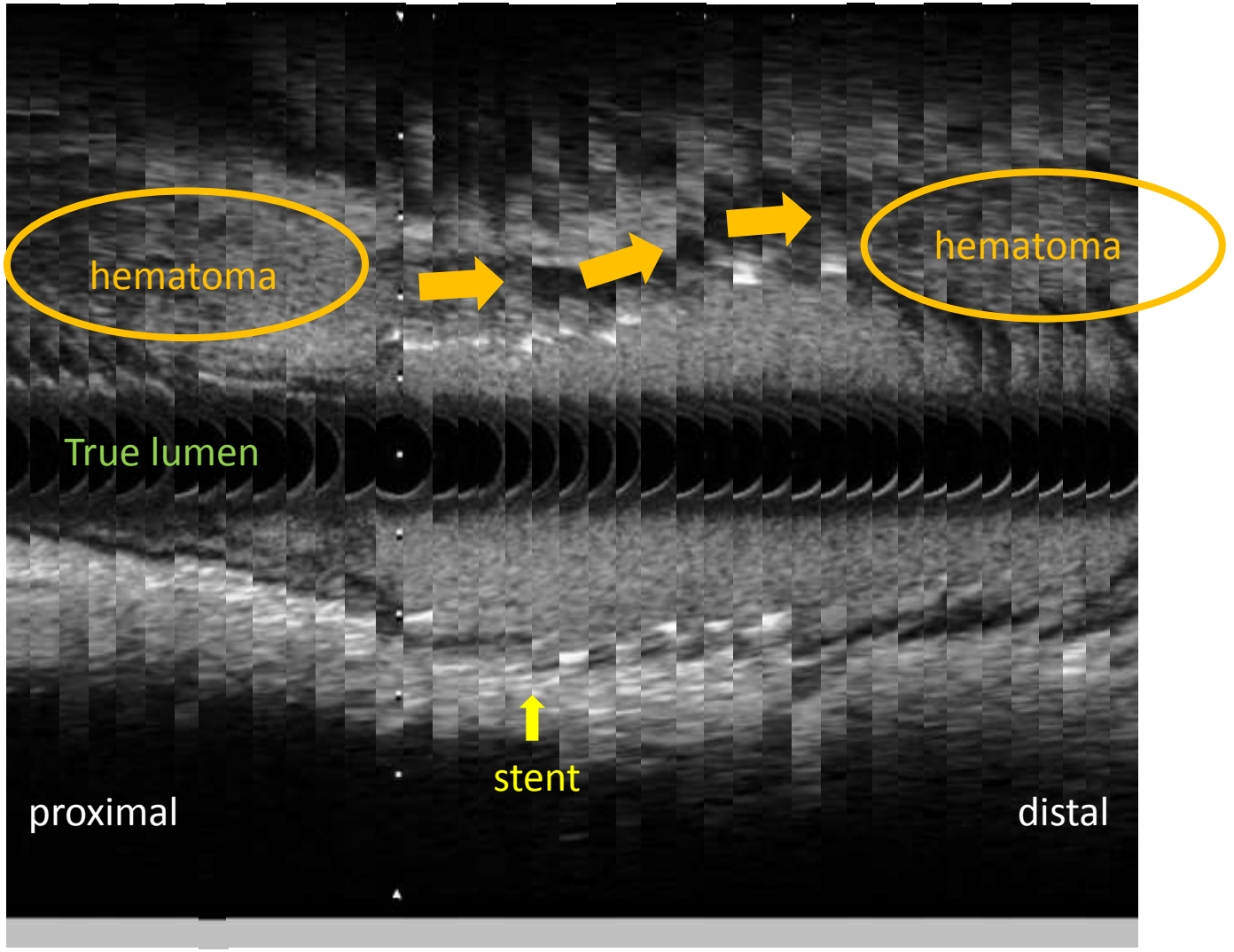
Why was the hematoma going down to the stent distal?



Why was the hematoma going down to the stent distal?

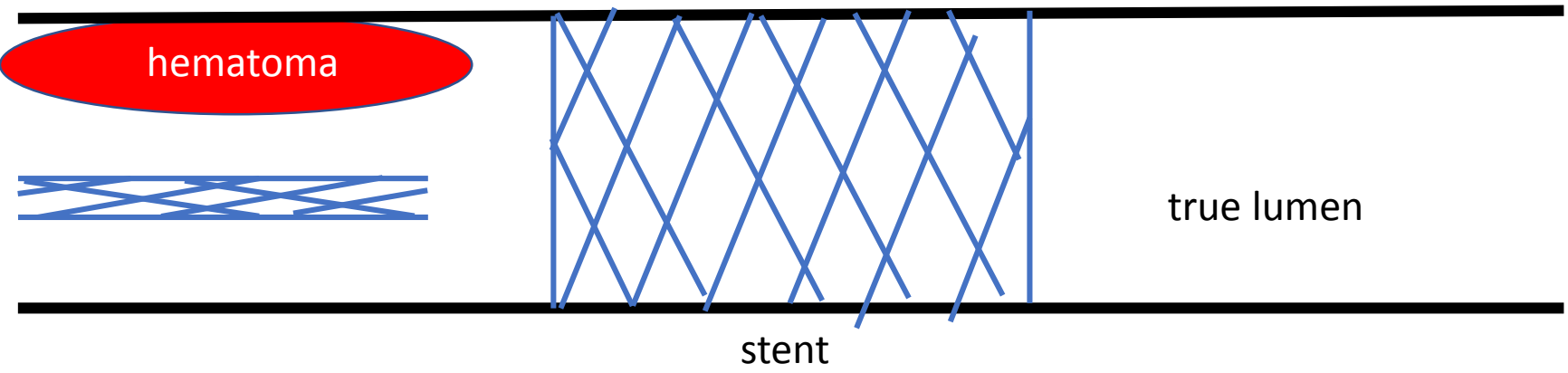


Why was the hematoma going down to the stent distal?



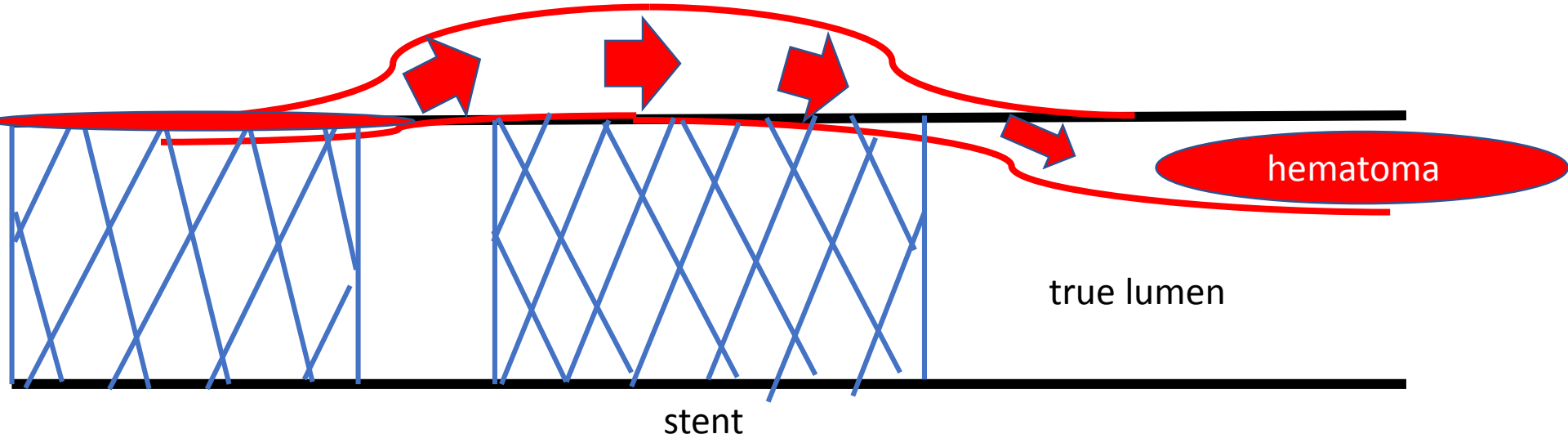
Why was the hematoma going down to the stent distal?

- Hematoma propagated to the proximal part of stent.
- Additional stent implanted in the proximal of stent pushed out the hematoma and hematoma went through underneath the stent.
- This is because vessel adventitia has afford to expand beyond the stent diameter.



Why was the hematoma going down to the stent distal?

- Finally, hemtoma propagated to the stent distal.



Bailout strategy

There are 3 important points for bailout

① Crossing a guidewire accurately inside the Vascular lumen

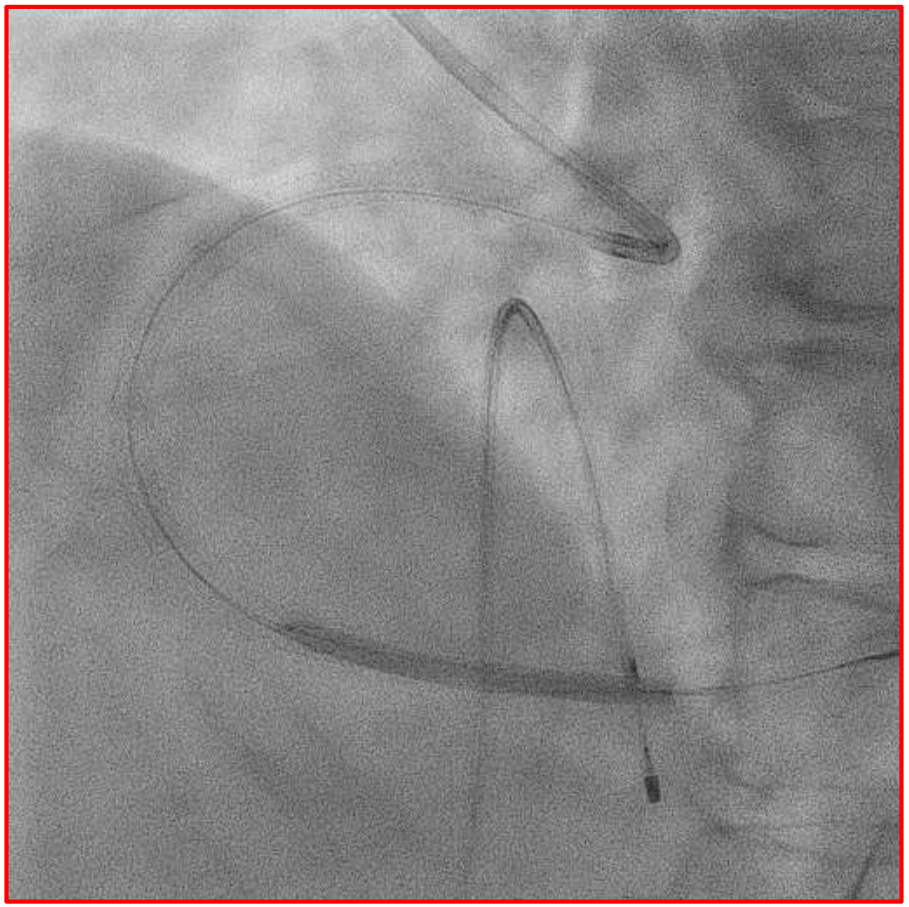
② Sealing the entry point of dissection as quickly as possible.

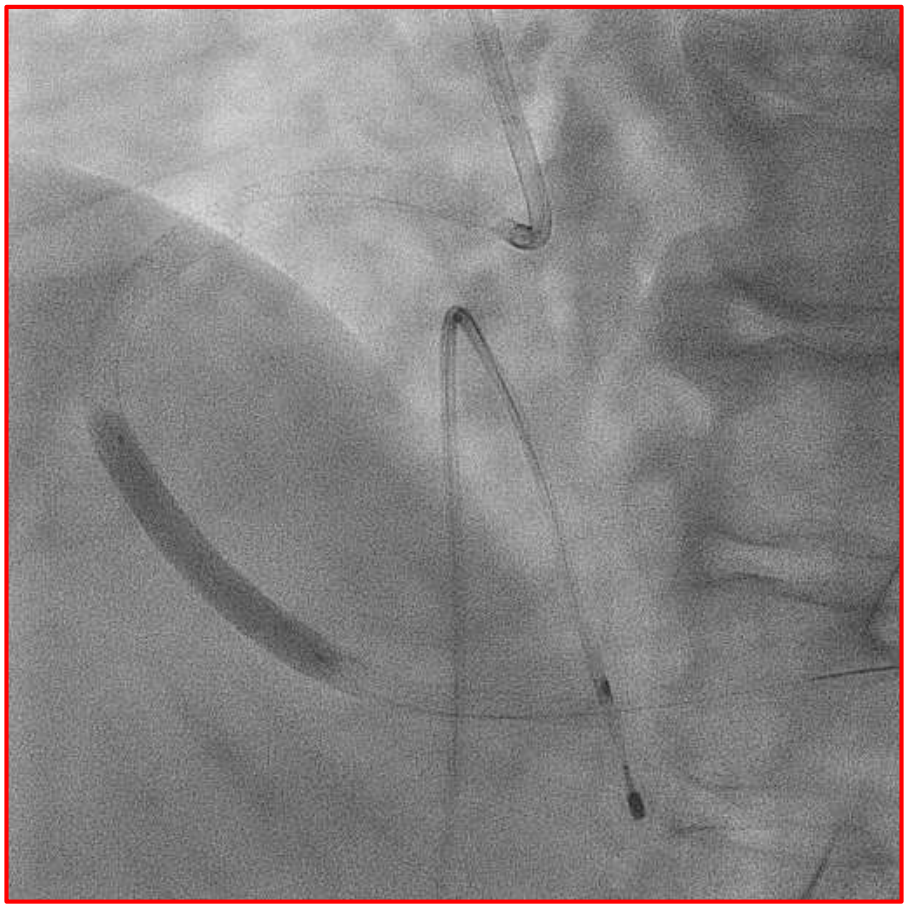
③ We should consider using some device such as cutting balloon to release internal pressure of hematoma and to prevent hematoma propagation if we add stent like this case.

Marysia S, et al. Circuration, 2012;126:579-588
Yumoto K, et al. JACC interv, 2014;7(7):817-819
Kubota H, et al. Clinical Case Reports 2017;5(6):894-898

Re-PCI

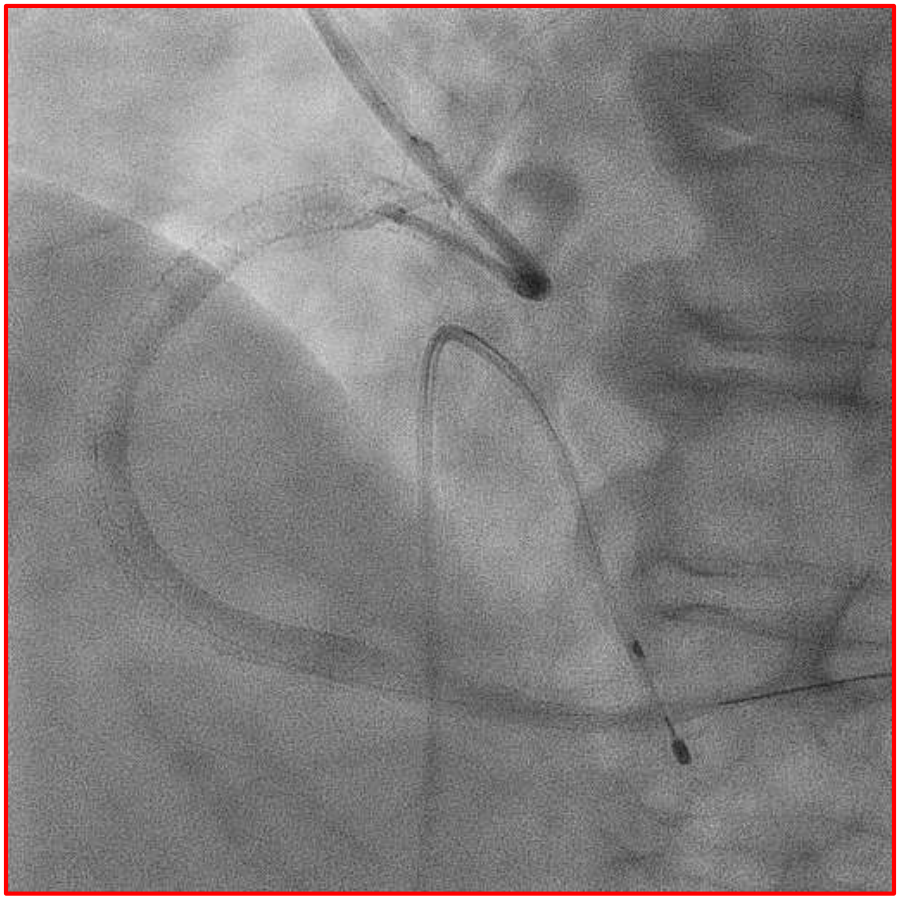
- A 3.0×38 mm Zotarolimus-eluting stent was implanted in the distal part of initial stent. After that, a 4.0×30 mm Zotarolimus-eluting stent was implanted in the proximal of initial stent.

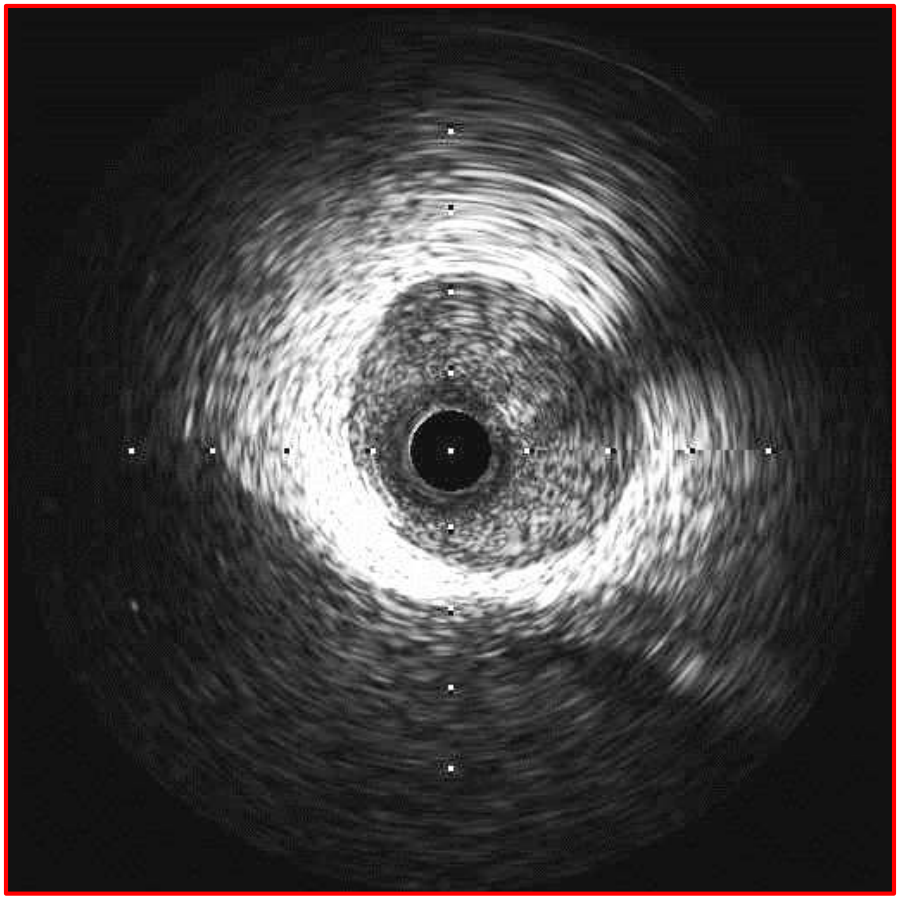




Re-PCI

Final angiogram showed good result ！





Conclusion

- This is a case of sneaking hematoma after PCI because of excessively large vessel which allows hematoma go through underneath the stent.

- Pay attention to hematoma which progress outside of stent when we perform PCI in a large vessel.

Thank you for your attention！