A case of multiple complications including very late stent thrombosis, in-stent restenosis, stent fracture and coronary aneurysm after Cypher stent implantation successfully treated with drug-coated balloon by optical coherence tomography guidance

Soichiro Enomoto, Toshihiro Tamura, Miyako Imanaka, Maiko Kuroda, Shunsuke Nishimura, Yusuke Yoshikawa, Yusuke Takahashi, Masashi Amano, Sari Imamura, Naoaki Onishi, Yodo Tamaki, Makoto Miyake, Hirokazu Kondo, Kazuaki Kaitani, Chisato Izumi, Yoshihisa Nakagawa

Department of Cardiology, Tenri Hospital, Nara, Japan

COI disclosure

- The authors have no financial conflicts of interest to disclose concerning the presentation.

Clinical presentation

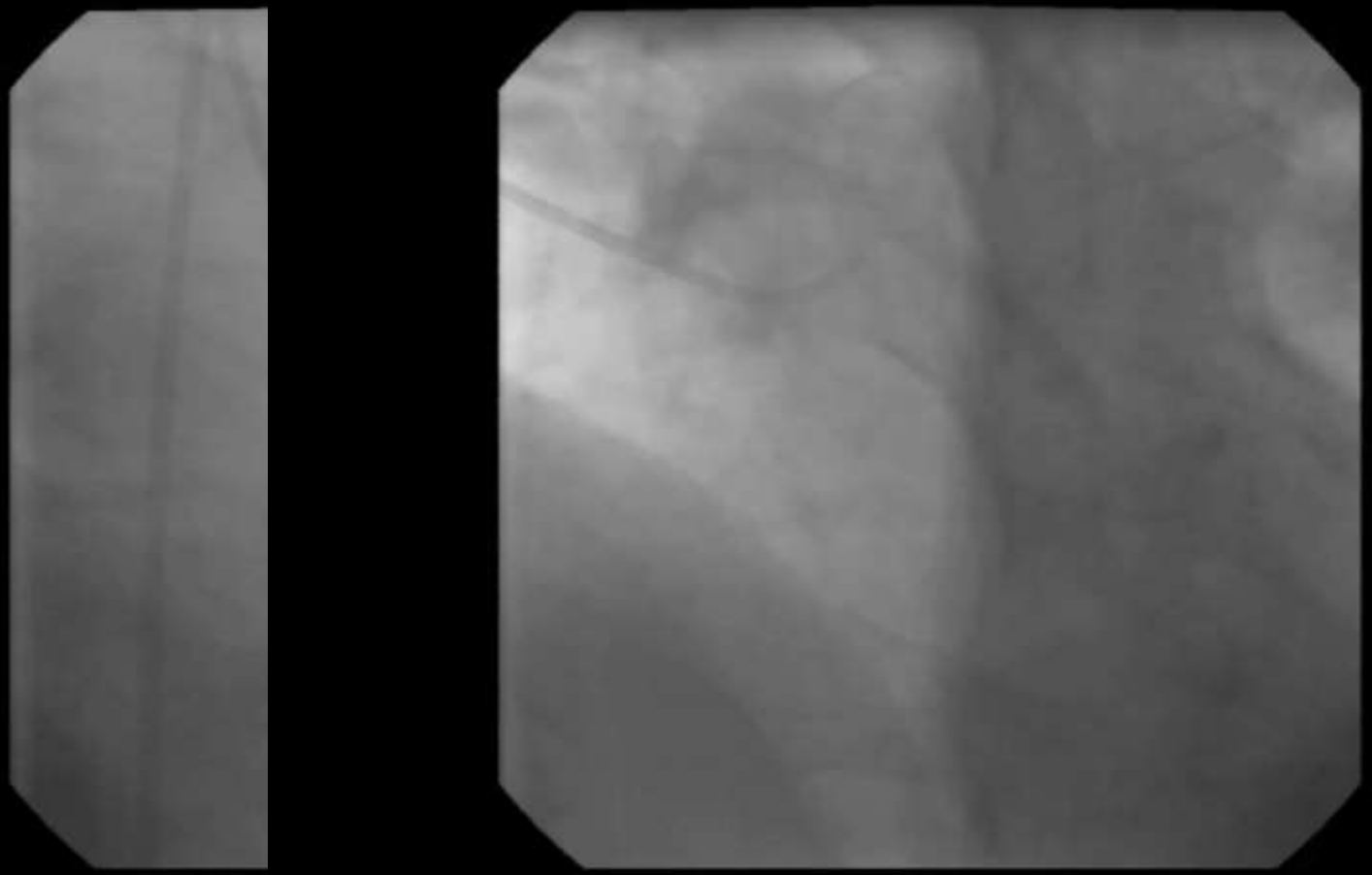
- 64 year old male
- CC; Chest pain
- HPI;

  2004: SESs implanted to proximal LAD (Cypher 3.5/18) and distal RCA (Cypher 3.0/23, 2.5/23).

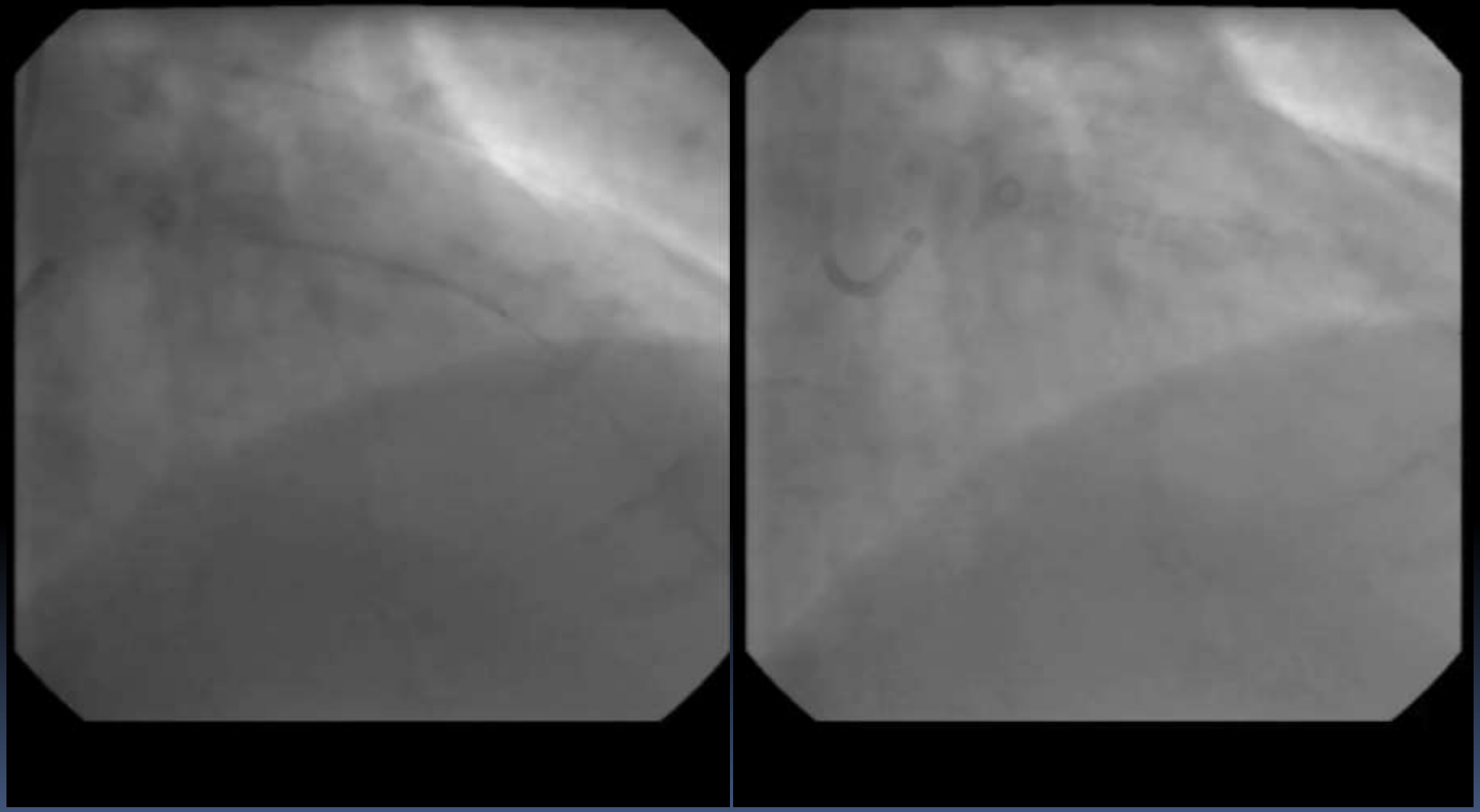
  BMS to LCX (Driver 3.0/30).

  Feb, 2009: He was hospitalized for antero-septal STEMI.
- PMH and risk factors; HTN, DLP, past-smoker
- Medication: aspirin, simvastatin, losartan, rabeprazole

Feb 2009: VLST at 5 years after Cypher implantation



3.5/33mm Cypher implantation overlapping initial Cypher



Aug 24, 2014: Admission for UAP

BP 110/78 HR 72

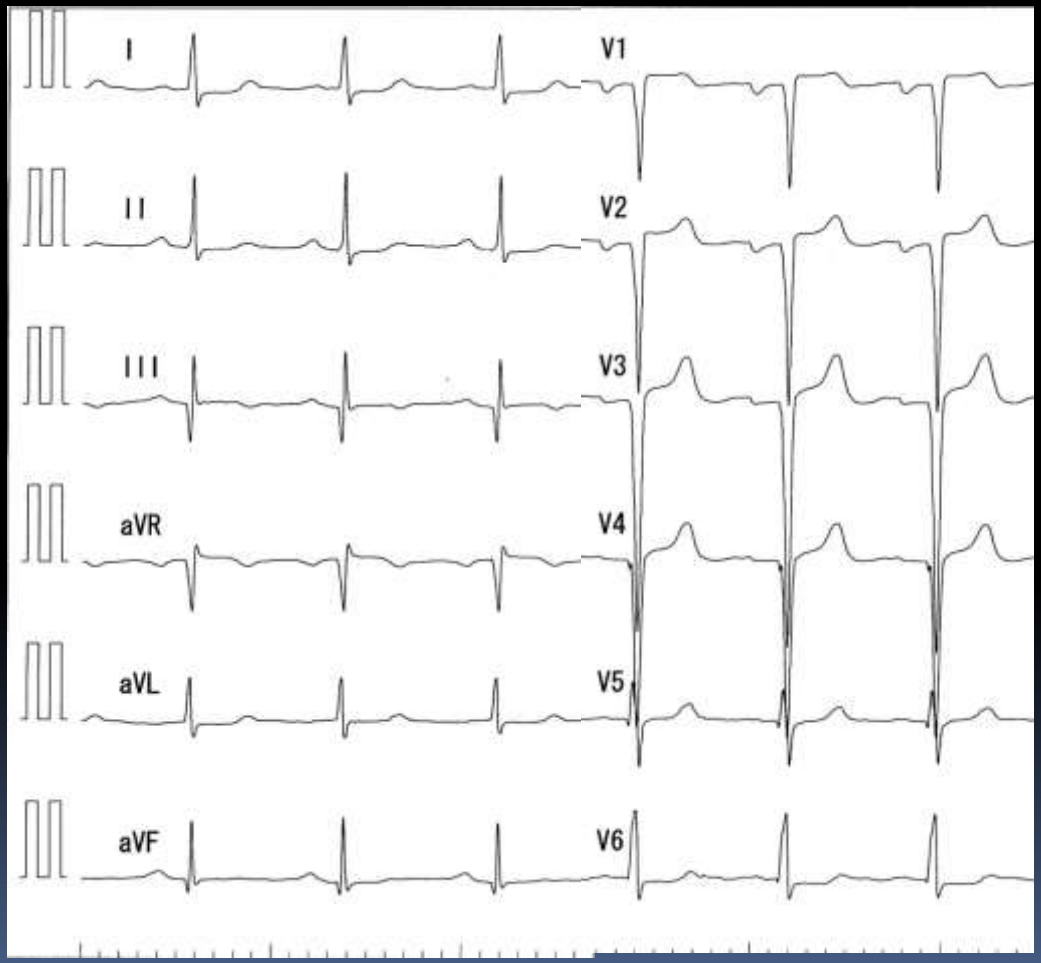
CK 47 TnT(−)

LDL 93 HDL 44.6 HbA1C 5.2

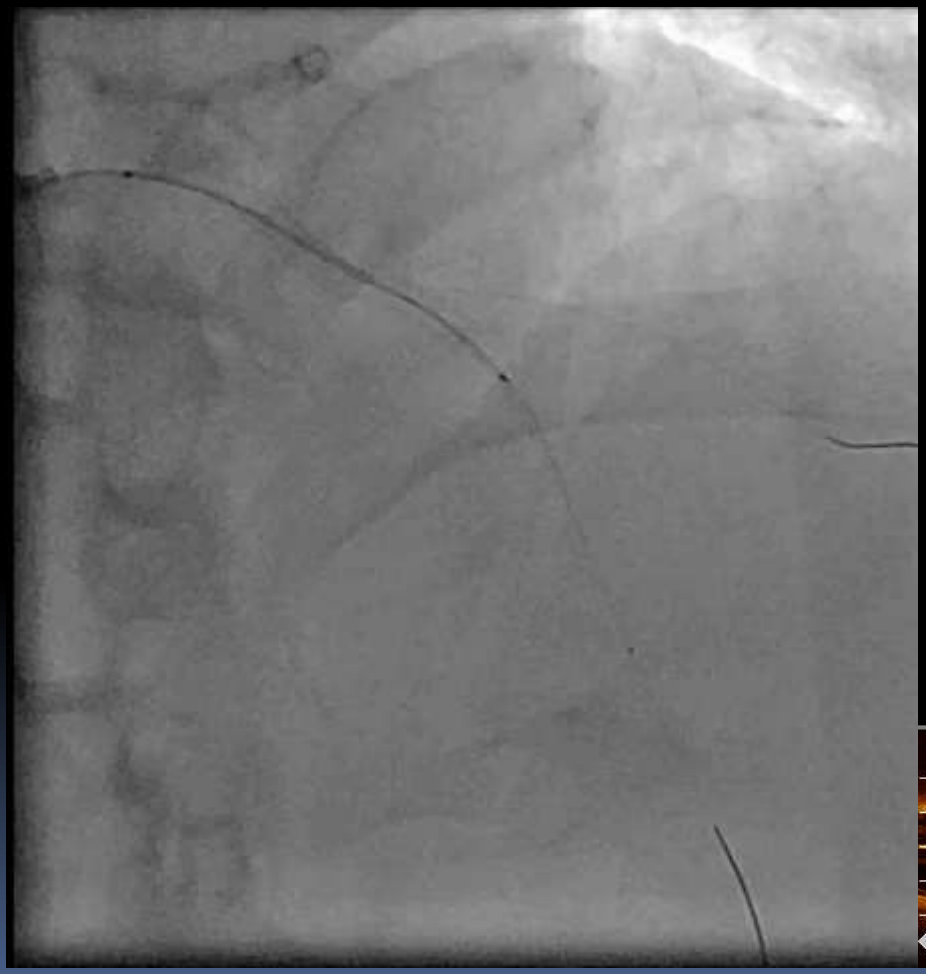
Chest Xp: CTR 59%, no congestion

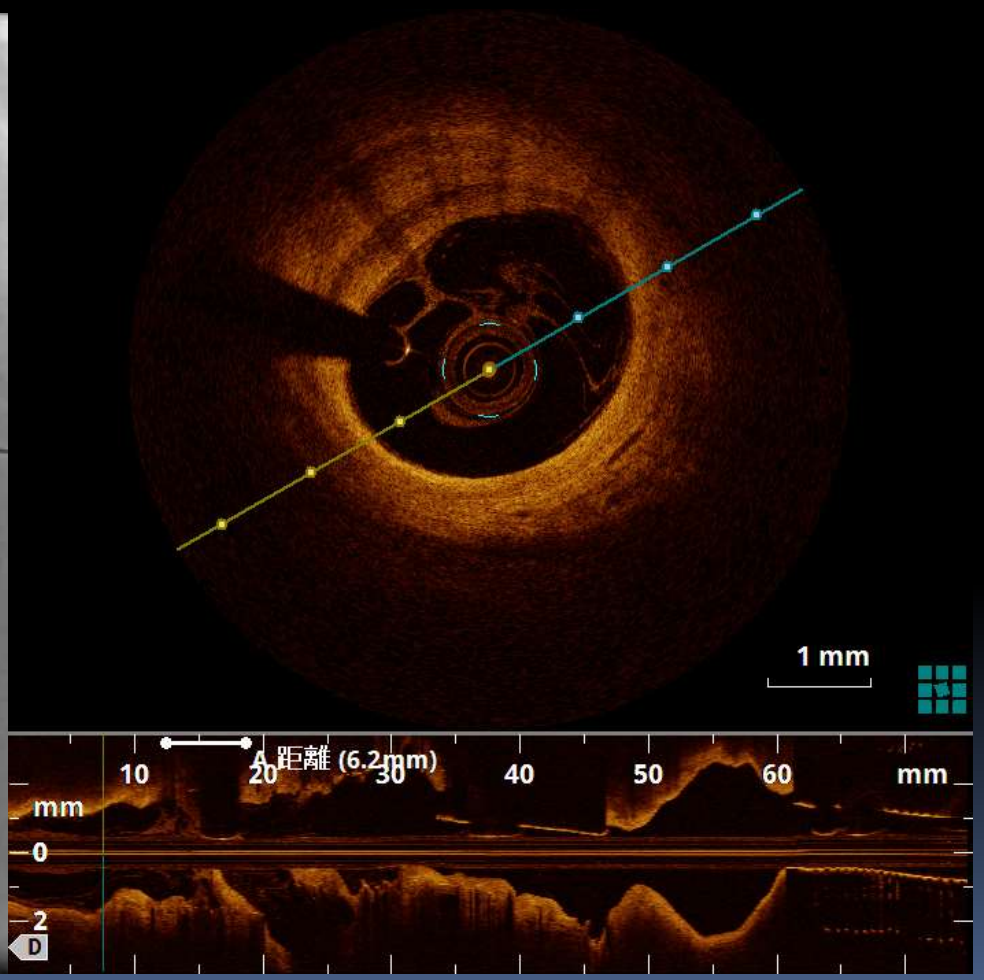
Echo: Dd 64 EF 39

anterosep, apical akinesis



Peri-stent contrast staining, restenosis, and stent fracture

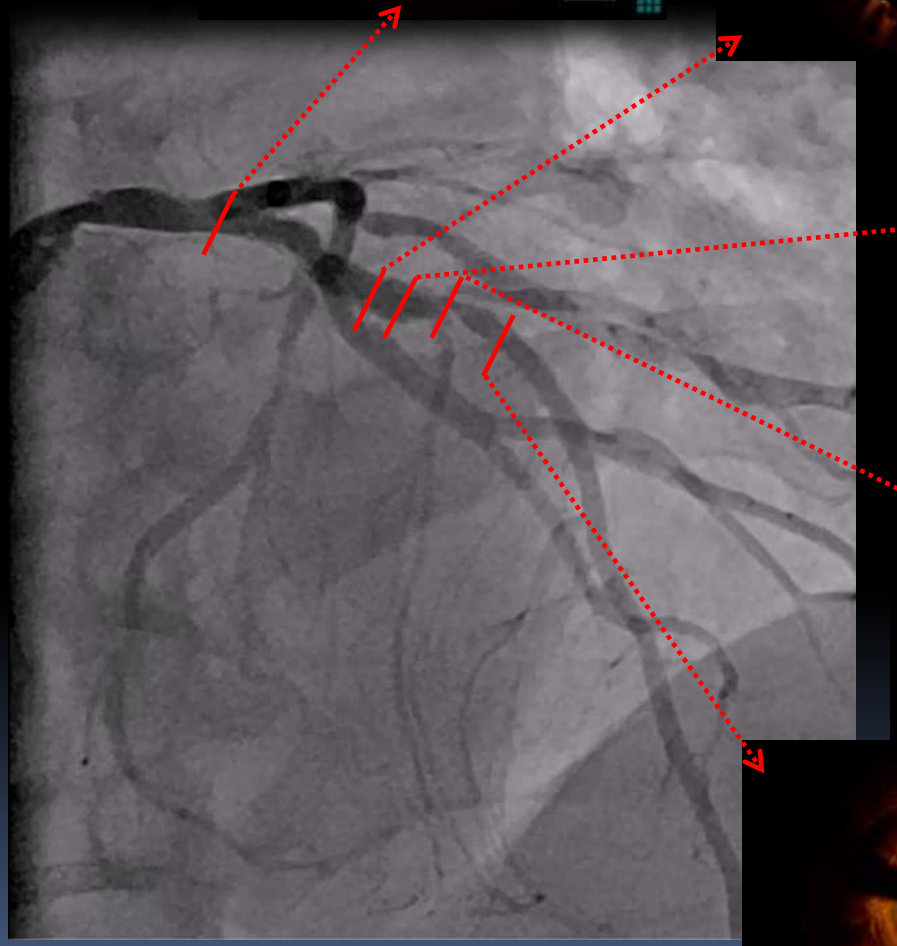



1 mm
A 距離 (6.2mm)
10
20
30
40
50
60
mm
mm
0
2
D

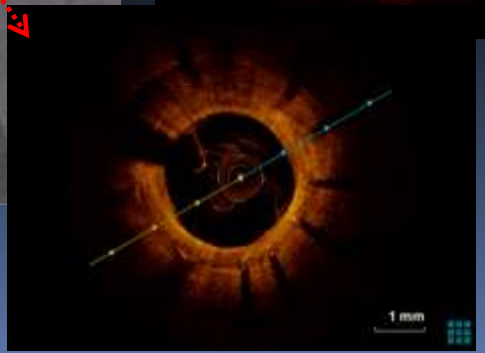
Proximal ref

Malapposed strut

Peri-strut hollow



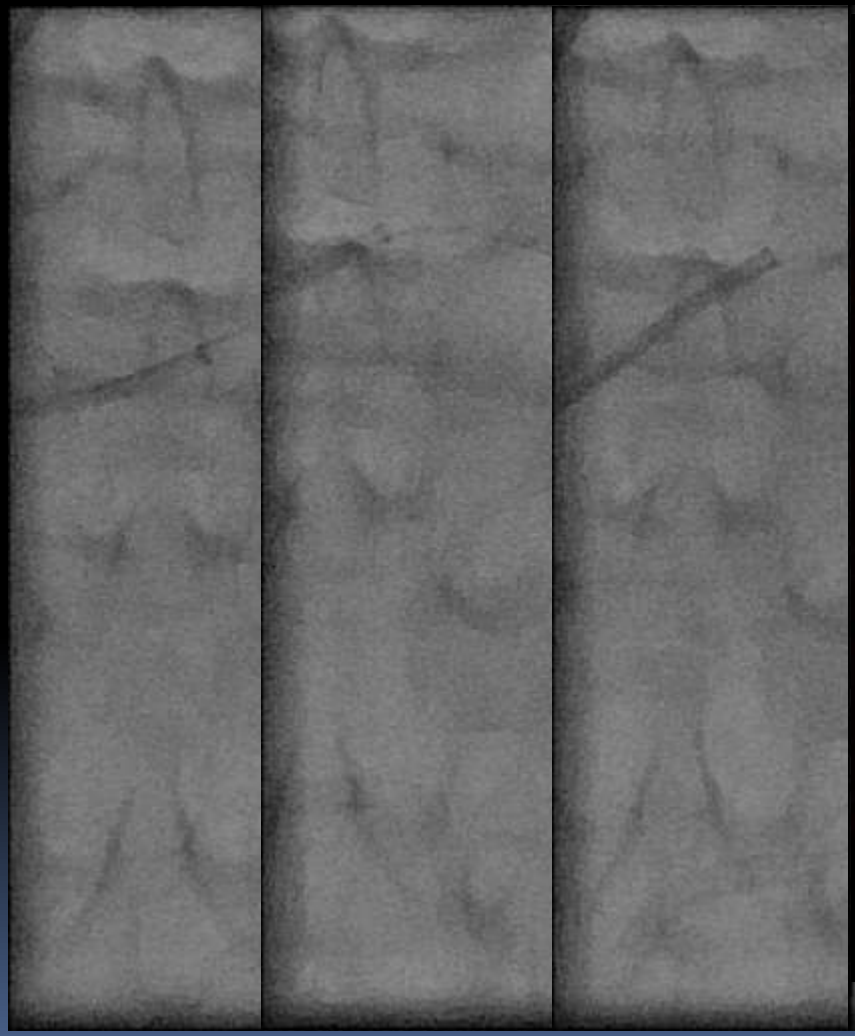
Stent fracture
LD: 4.4 × 4.8mm
LA: 17.1mm^2

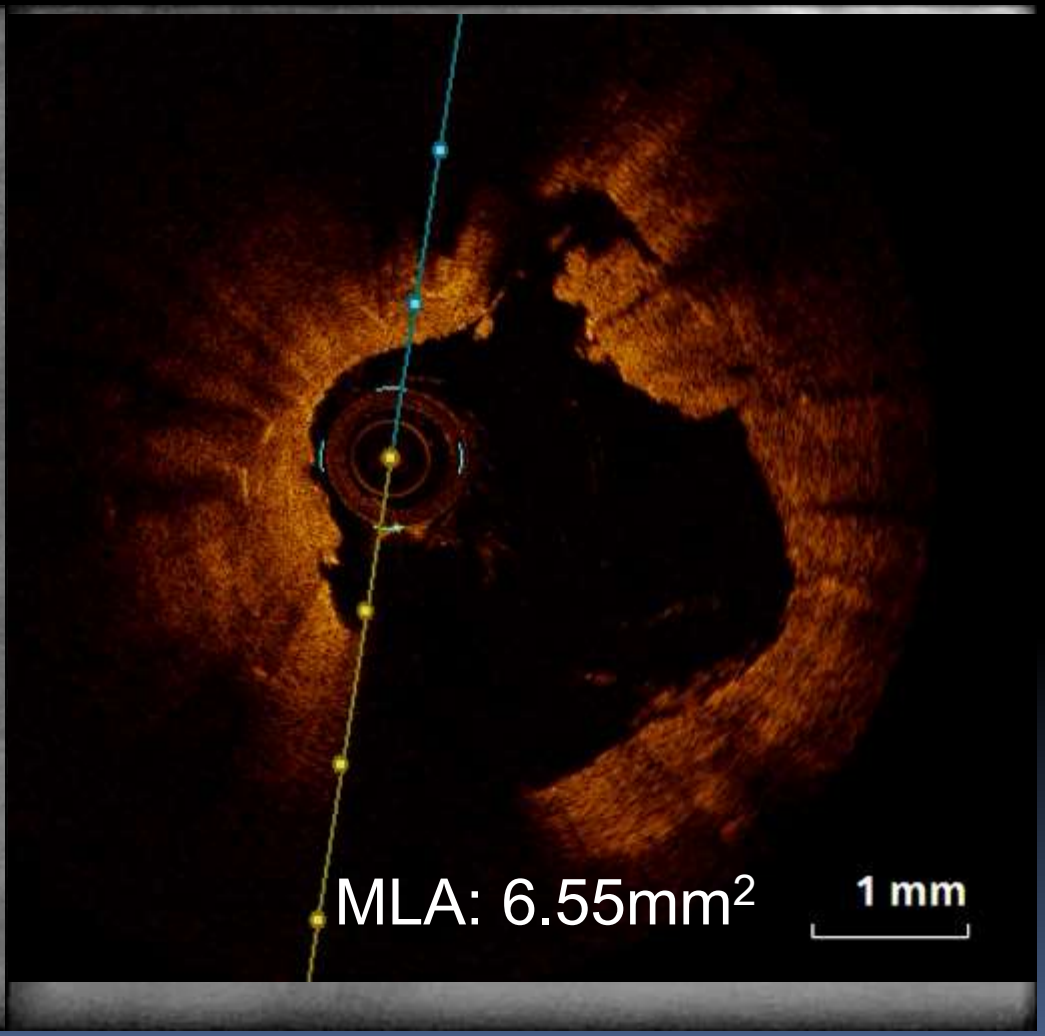


MLA
LD: 1.6 × 2.0mm
LA: 2.6mm^2
SA: 9.0mm^2

Distal ref

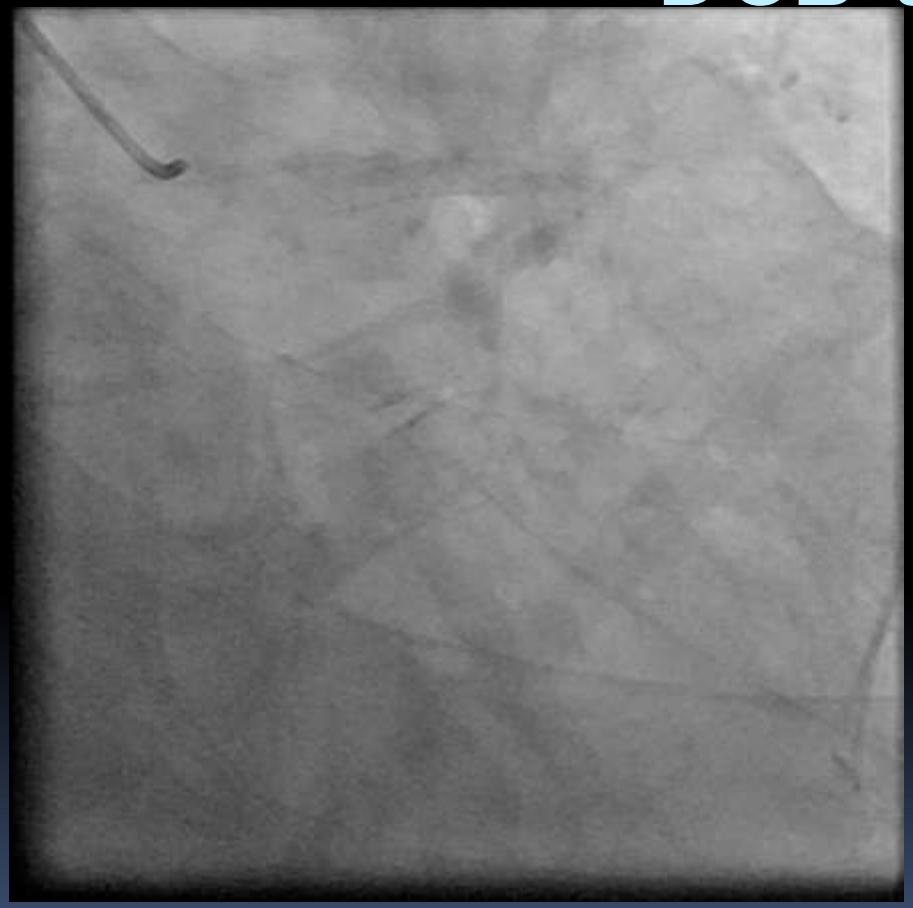
DCB treatment for ISR

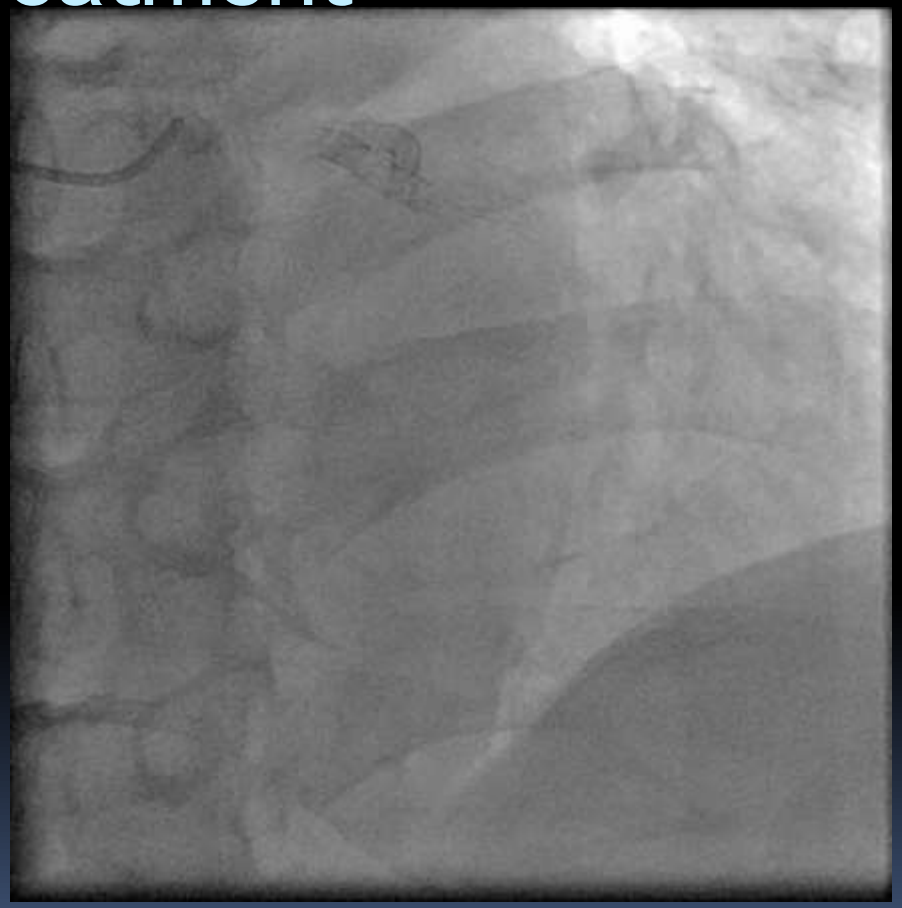




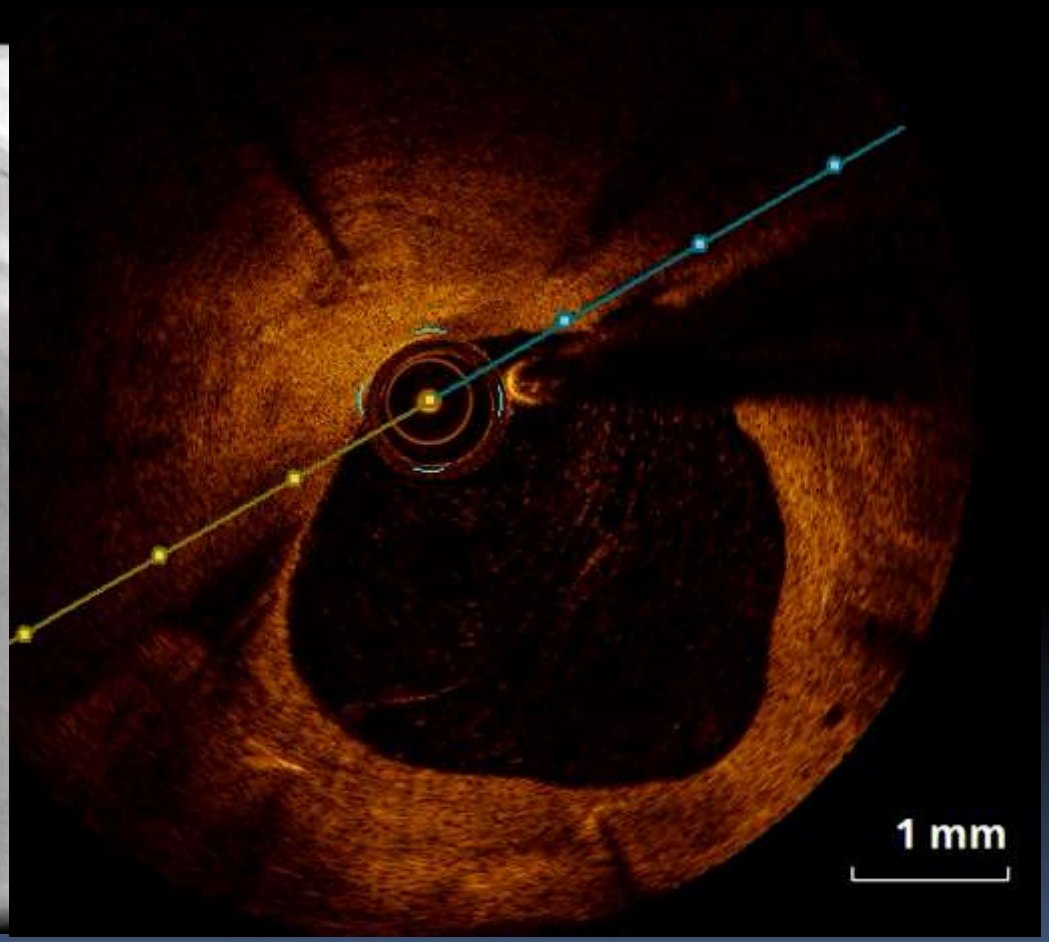
Tazuna 2.0/10mm NSE 3.0/13mm SeQuent Please 3.0/15mm

Follow up CAG at 8 months after DCB treatment

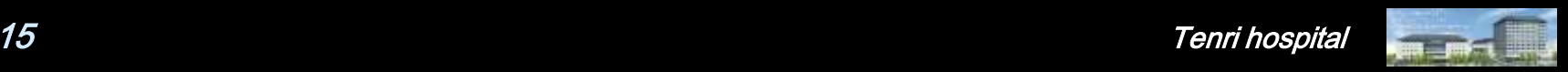




Preserved luminal space with less neointimal growth



MLA: 6.55→7.49mm^2



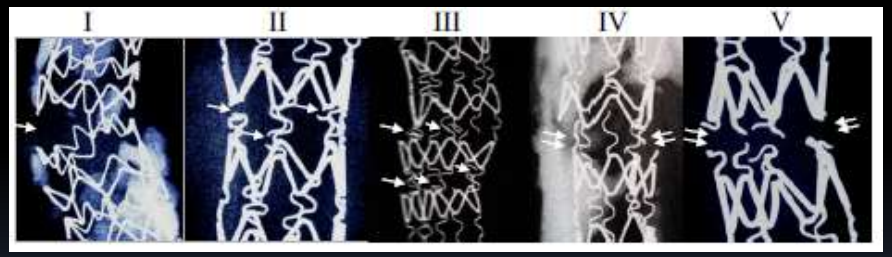
Discussion

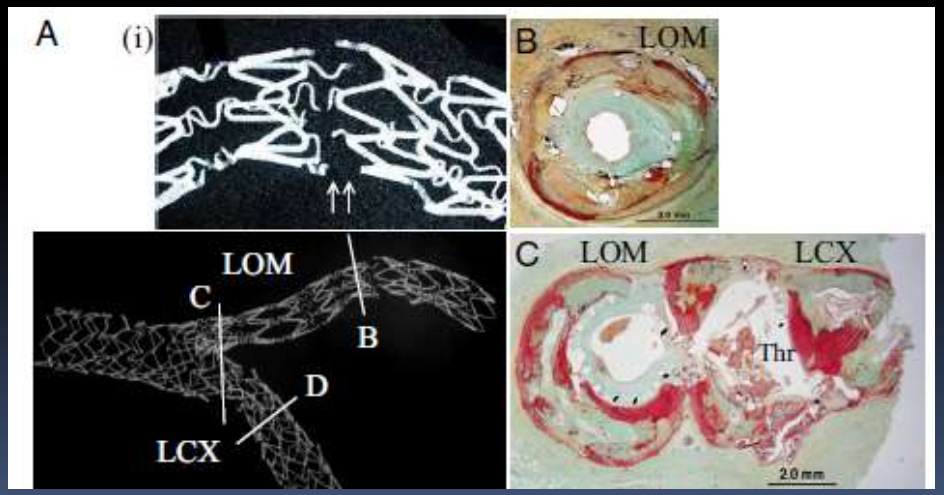
- The incidence of stent fracture (SF) is reported in 0.09% to 8.4% of patients and SF occurs most commonly in first generation Cypher stents.

Catheter Cardiovasc Interv 2014;83:E251–9

- Grade V fracture lesions were associated with adverse pathologic findings.

J Am Coll Cardiol 2009;54:1924–31





- Optimal treatment strategy of SF remains unclear.

Catheter Cardiovasc Interv 2014;83:251–9

- DCBs are superior to conventional balloon angioplasty and similar to first-generation DES in patients with BMS-ISR or DES-ISR.

J Am Coll Cardiol 2014;63:2659–73

- The RIBS IV trial reported that DCB was less effective in patients with DES-ISR than EES.

J Am Coll Cardiol 2015;66:23–33

- However, DCB may be preferred over DES in patients with several metal layers and large side branches.

Conclusions

- OCT was useful to clarify the distribution of lesion and decide the strategy of treatment in this complicated stent-failure case.
- DCB was effective to treat the SF lesion localized absolutely in stented segment, not extending outside the stent edge.