IVUS Catheter-induced Intimal Dissection
Apparent after Successful IVUS-guided Guide-wiring of an Angiographically Non-visualized Culprit Vessel During Primary PCI

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57-year-old male

Chief Complaint: Chest pain for 1hr

CAD risk factors: Smoking

Vital signs: within normal range

ECG: 2 mm ST-segment elevation in leads II, III, and aVF

Dx: STEMI, inferior wall, Killip 1
Coronary Angiography (1)
Coronary Angiography (2)
Coronary Angiography (3)
Q1; Which one is the culprit lesion?

1. d-LCX

2. PLV br.

3. Somewhere ???
IVUS interrogation
G/W on IVUS-guidance
CAG after Successful G/W into the PDA
Q2; What might have happened?

1. Thrombus migration
2. In-situ thrombosis
3. Catheter-induced damage
4. Something else?
Q3; What would be the next procedure?

1. Another IVUS exam for p-RCA
2. Aspiration Thrombectomy + GpIIb-IIIa inhibitor
3. Fix the culprit vessel
Aspiration Thrombectomy & IC Abciximab
PCI for PDA

Ikazuki (Kaneka) 2.5*15 at 8 ATM → Resolute 3.0*18 at 18 ATM
CAG after stenting at the PDA
IVUS for p-RCA lesion

Intimal dissection

Intra-plaque hemorrhage
Direct Stenting at p-RCA

Resolute 4.0 ×15 at 24 ATM
Discussion

- Why did the intimal dissection occur after the IVUS catheter pullback?
- What was the mechanism of this injury?
Catheter deformation from multiple uses

Intimal dissection
**IVUS related complications**

- **Coronary spasm (most common)**: 2.9% of patients  

- **Dissection, acute vessel closure, embolism, thrombus, urgent bypass surgery**: < less than 0.5% of cases
- More freq in patients undergoing interventions, especially ACS  

- In 2207 pts, technical failure: 6 (GW winding), 3 (broken catheter)
- European registry, dissection, acute closure: 0.4%  
IVUS related complications

- **Stent strut damage** after IVUS catheter pullback, requiring further inflations

- 4 cases of **wire kinking** with the simultaneous use of IVUS and pressure wire.

- **IVUS catheter entrapment** after coronary artery stenting
Take Home Messages

I. Meticulous review & multiple projections of CAG are needed

II. Never, never, never....give up!

III. IVUS is quite valuable for detection of an angiographically non-visualized culprit vessel during primary PCI

IV. Do not re-use the catheter as possible.

V. Careful advance and pull-back in the manipulation of IVUS is essential to minimize possible complications.