

IVUS-guided Complex PCI in Vietnam

**Trương Quang Bình MD, PhD, FSCAI
University Medical Center HCMC**

Content

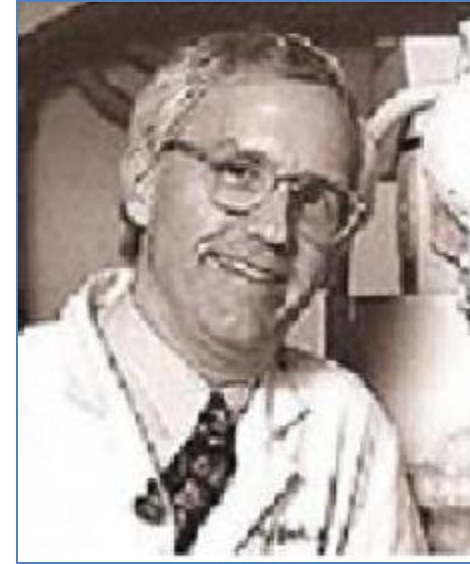
- 1. Guidelines 2018 for IVUS-guided PCI**
- 2. Case sharing**
- 3. IVUS penetration around the world**
- 4. IVUS penetration in Vietnam**

History



Dr. N BOM

**First IVUS system designed
by Nicolas Bom and
Rotterdam team (1971)**



Dr. PG YOCK

**Intraluminal human
arteries visualization by
Paul G. York (1988)**

ESC guidelines 2018

Recommendations on intravascular imaging for procedural optimization

Recommendations	Class ^a	Level ^b
IVUS or OCT should be considered in selected patients to optimize stent implantation. ^{603,612,651–653}	IIa	B
IVUS should be considered to optimize treatment of unprotected left main lesions. ³⁵	IIa	B

IVUS: optimize stent implantation

- Apposition of stent struts to the vessel wall, not surrounded by lumen

Complete
apposition

Well
expansion

- MSA at least
 - 5.0-5.5 mm² (non-LM) & 8.7 mm² (LM): DES
 - 6.5-7.5 mm²: BMS (not in small vessels)
 - >90% of distal ref. lumen area or or >80% of ave. ref. lumen area

IVUS

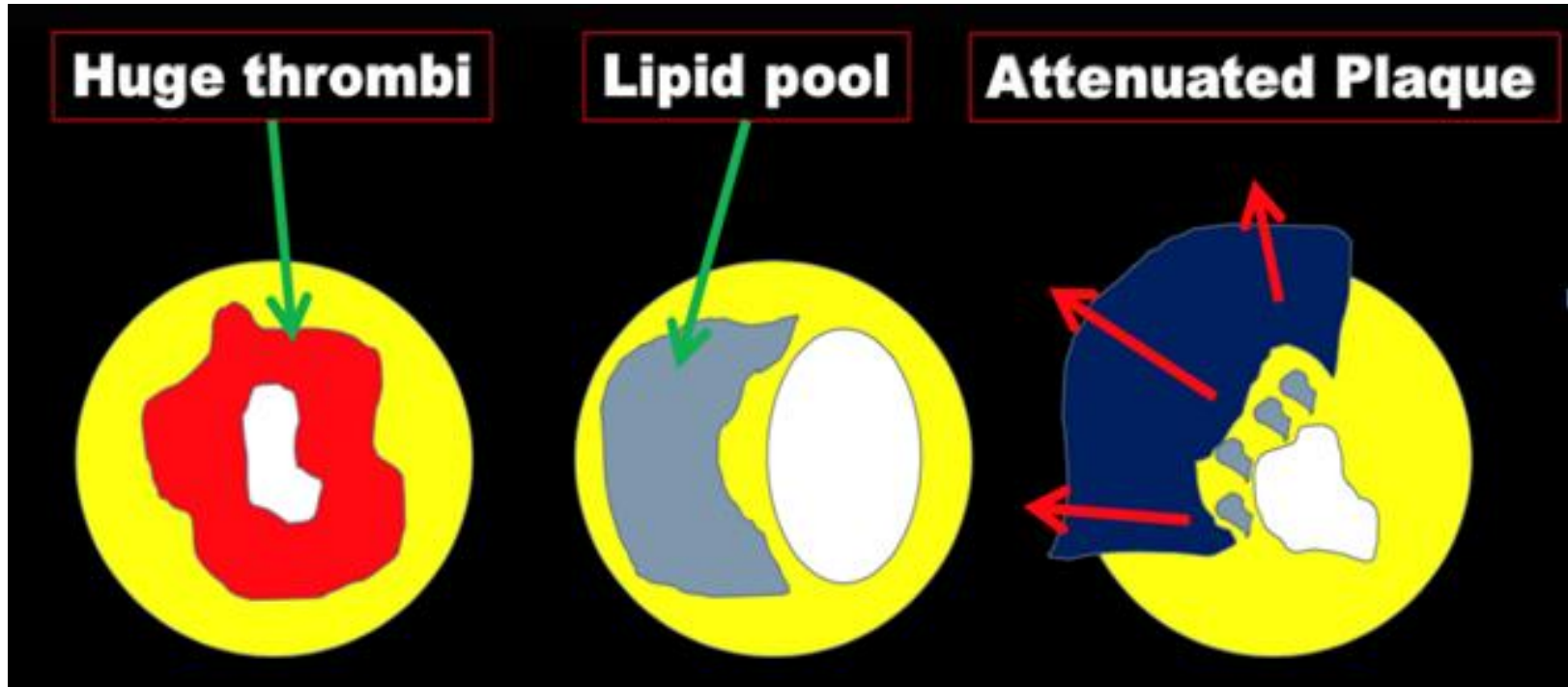
- Post-procedure IVUS for evaluation of edge dissection

No
edge
dissection

Full
lesion
coverage

- Detection of reference site with plaque burden of < 50%

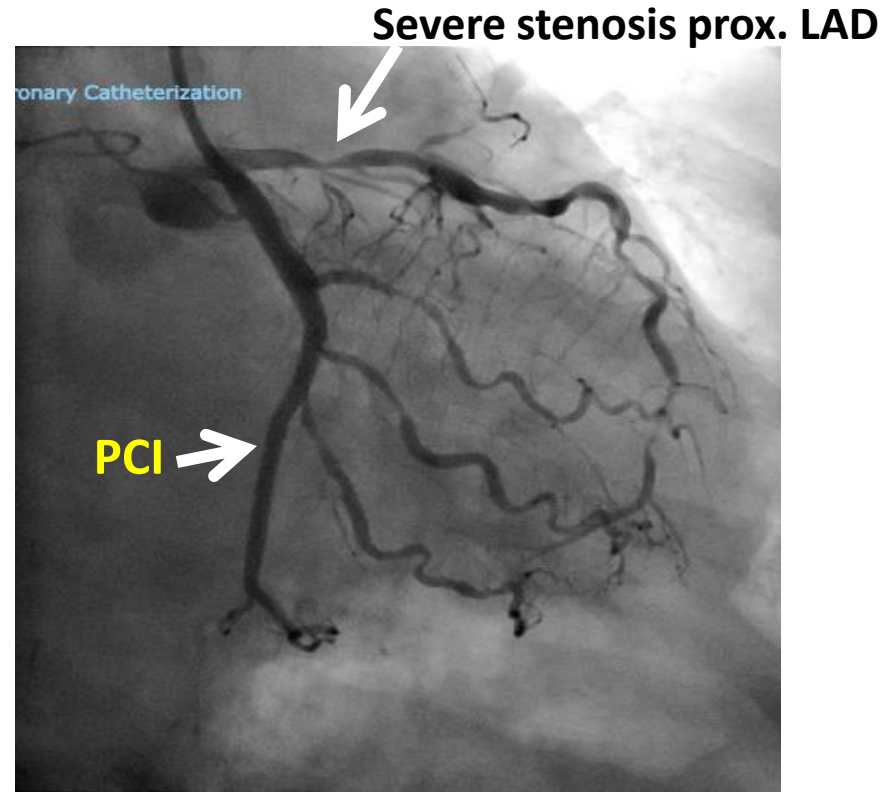
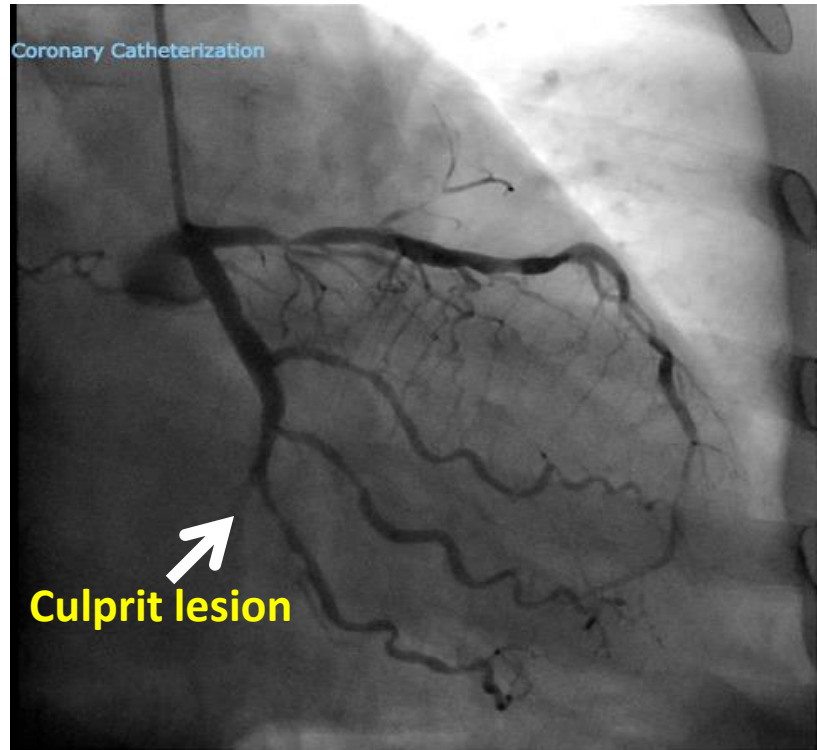
IVUS: Predict distal embolisation



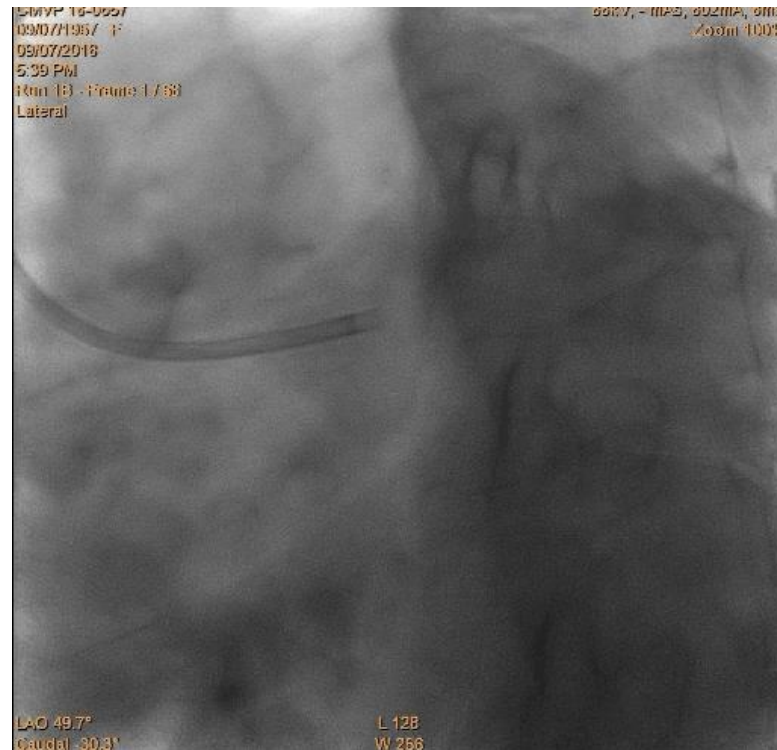
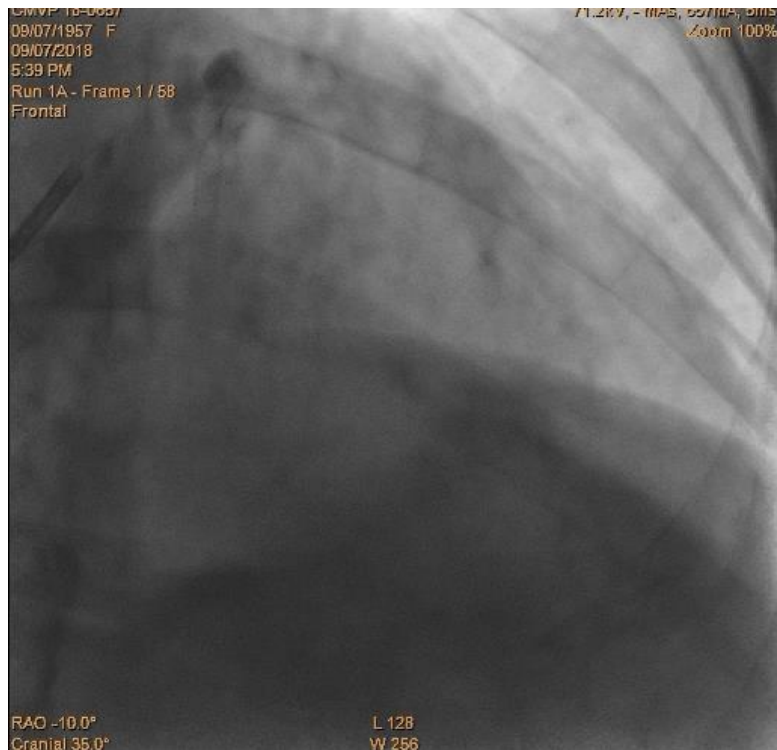
Case sharing

- 61 female patient.
- Non-STEMI
- History: HTN, Dyslipidemia

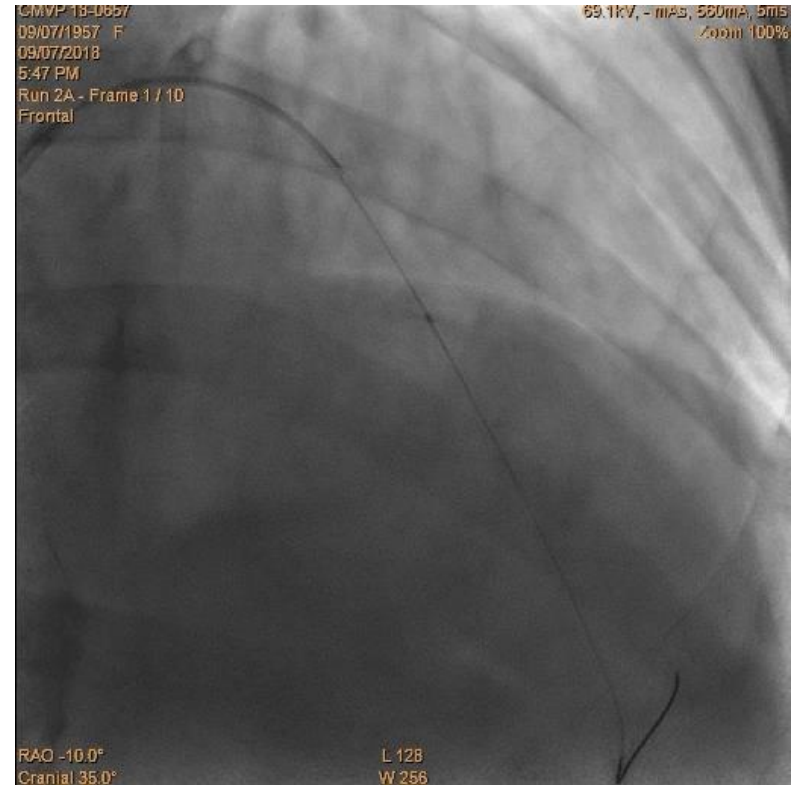
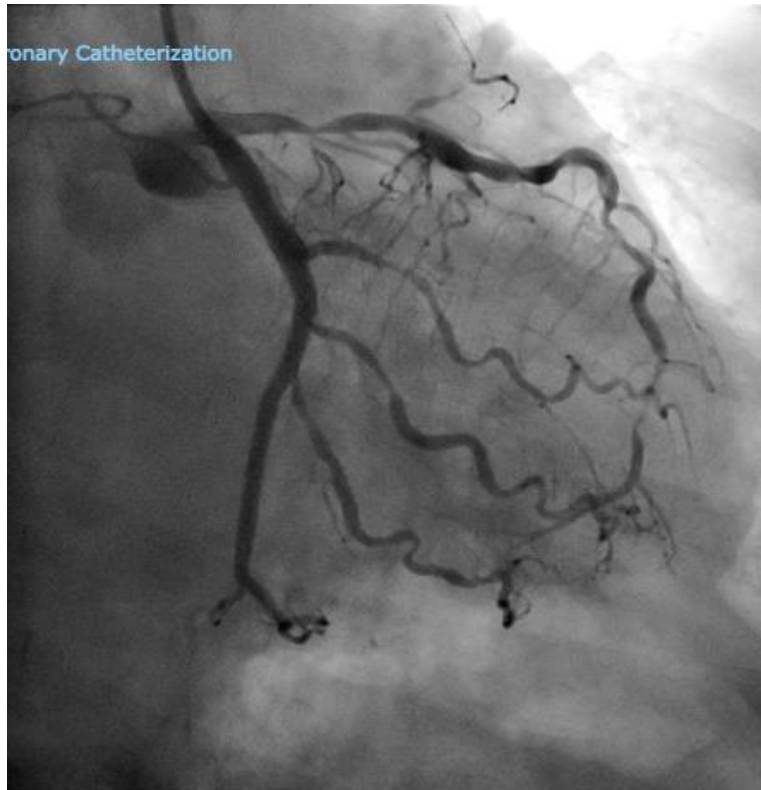
Angiogram



Staged PCI for LAD 4 days later

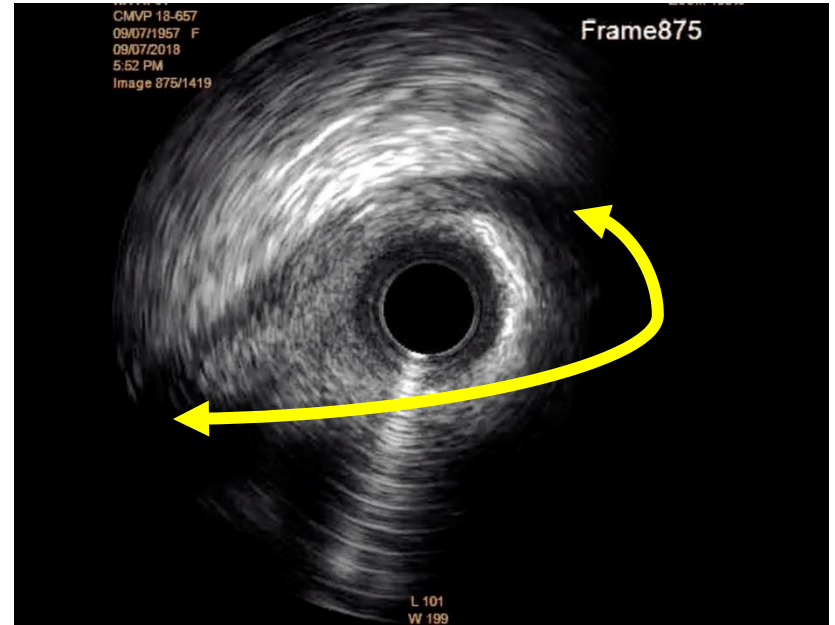
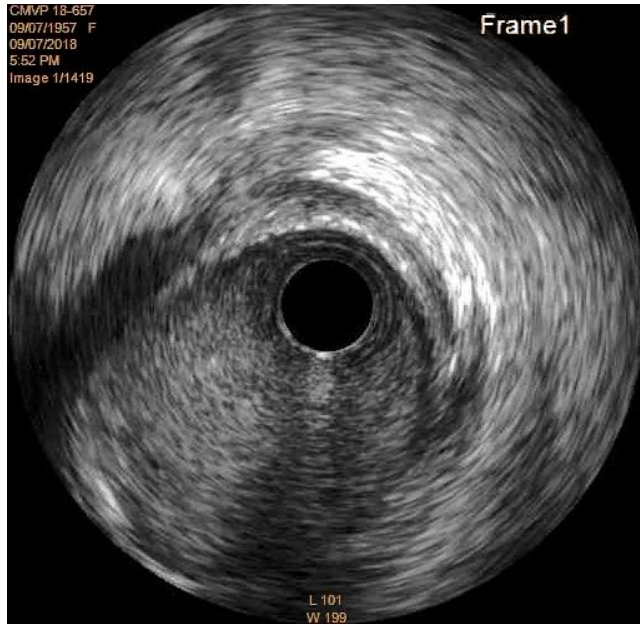


IVUS for LAD

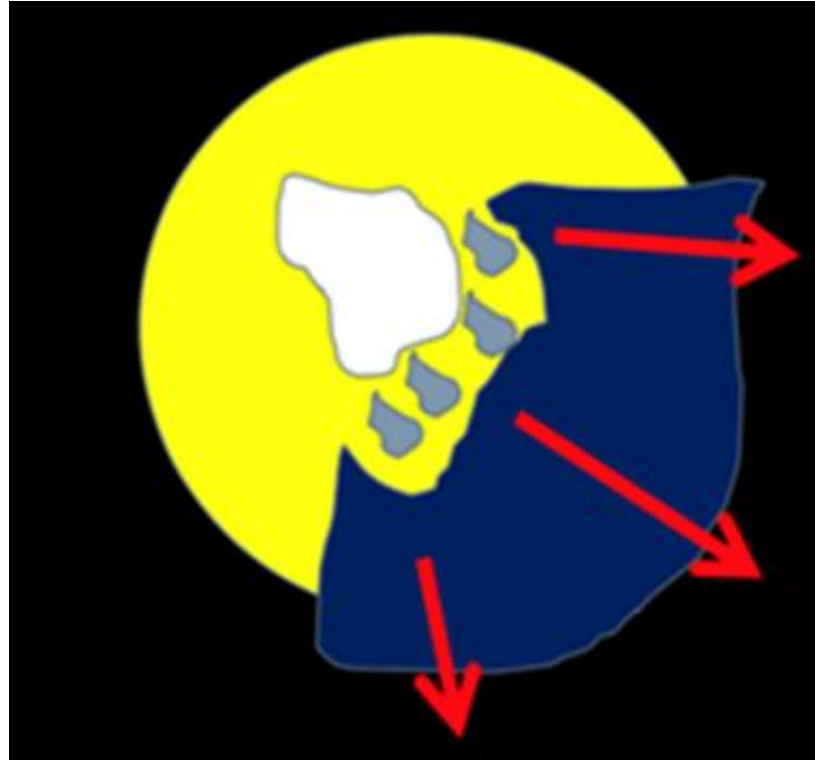


IVUS for LAD

Attenuated Plaque $> 180^{\circ}$

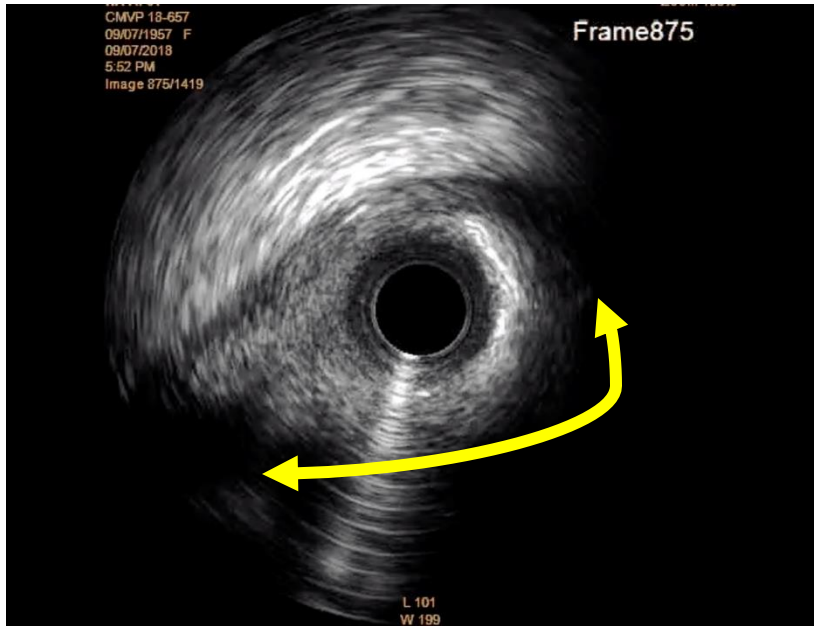


**Attenuated plaque $> 180^\circ$ and length > 5 mm:
high risk for distal embolism**



Distal protection device

Attenuated Plaque



Emboolic protection device (Spider FX)



POBA

POBA



Stent positioning



Stenting

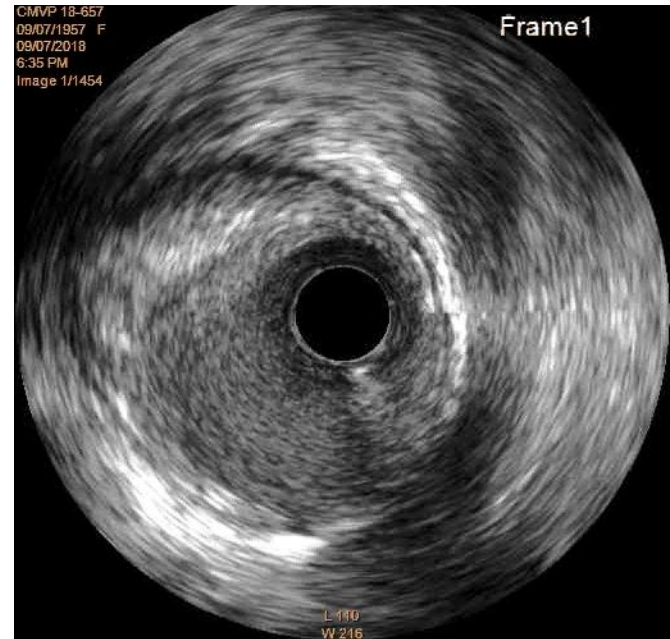
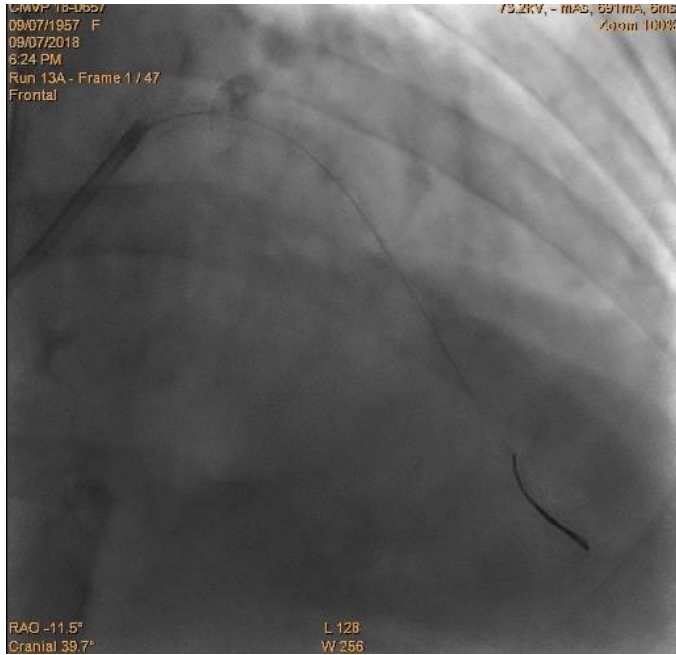
Stent deployment

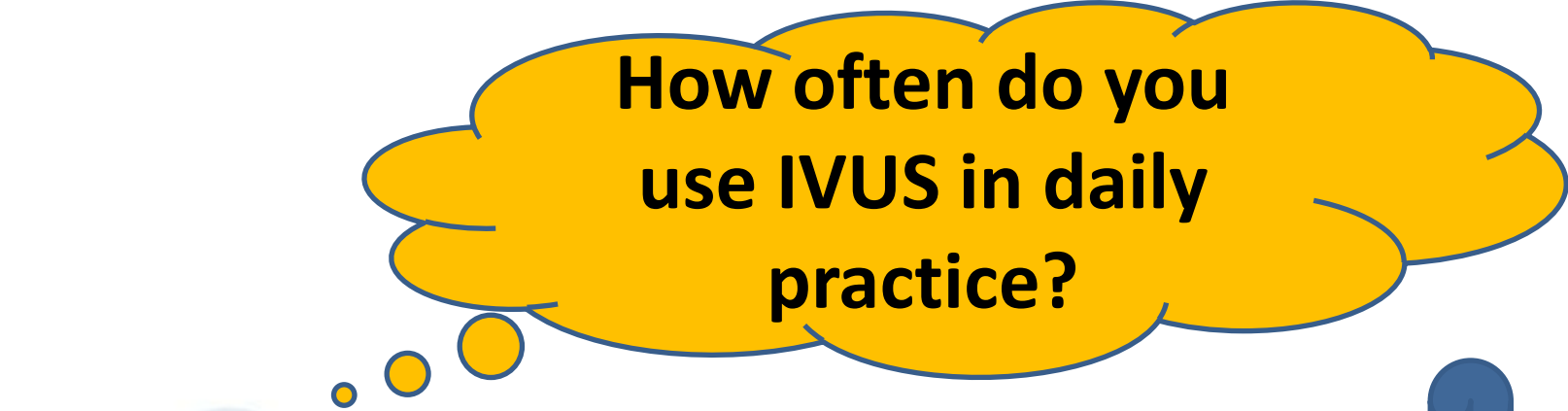


Slow flow after stenting

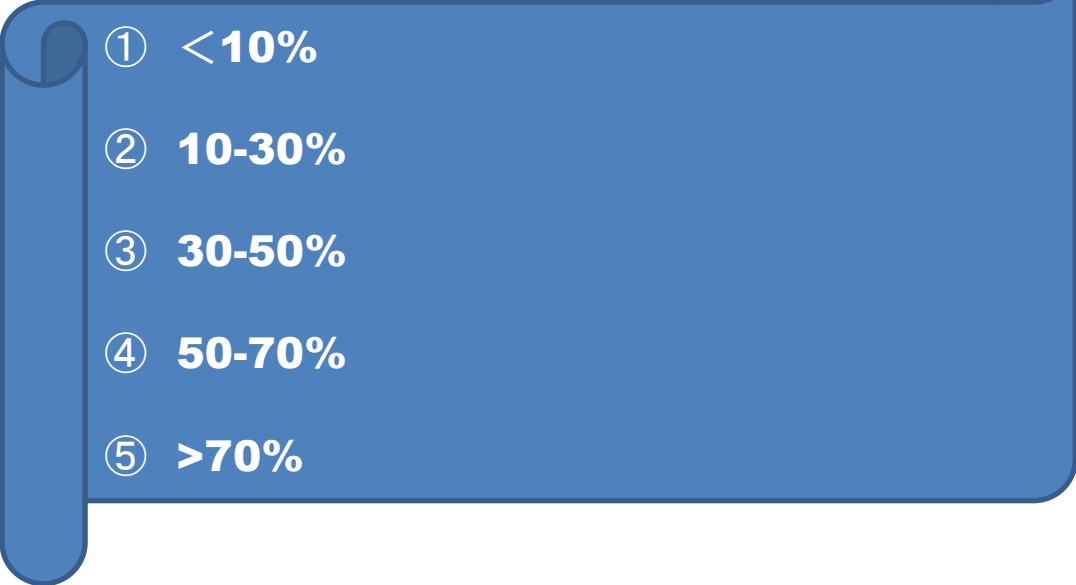


Final Angiogram and IVUS



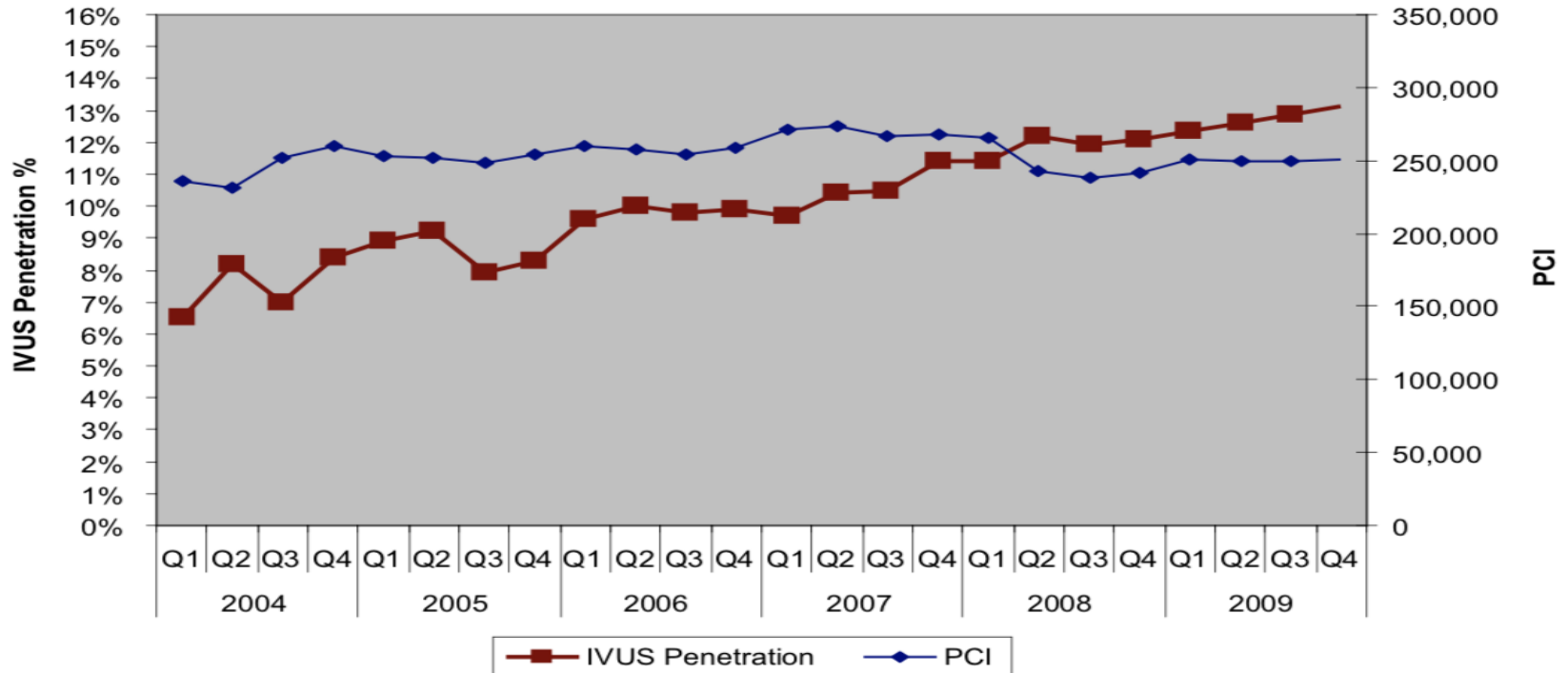


**How often do you
use IVUS in daily
practice?**

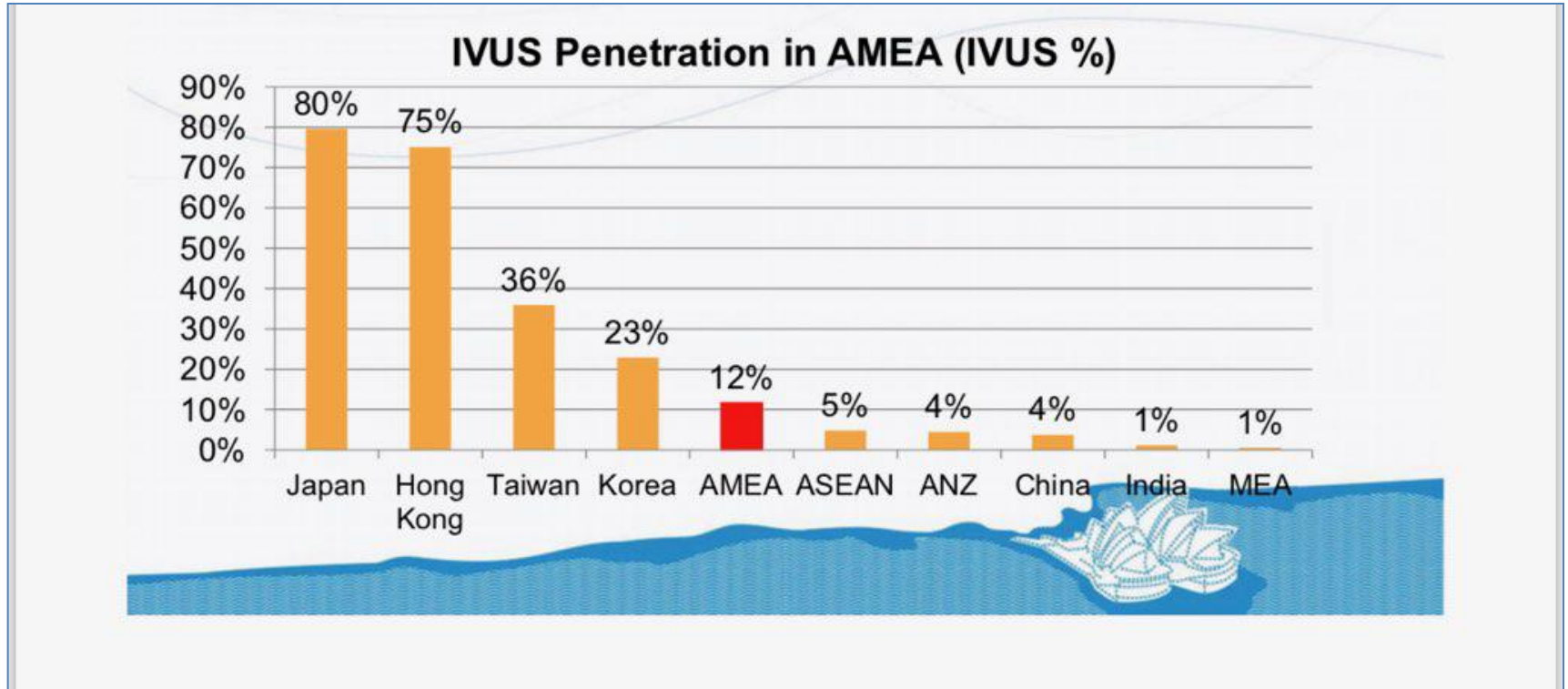
- 
- ① **<10%**
 - ② **10-30%**
 - ③ **30-50%**
 - ④ **50-70%**
 - ⑤ **>70%**

Progression of IVUS Usage in PCI Use in United States Through 2009

US IVUS Procedure Usage in PCI



IVUS penetration in some markets (2017)



AMEA = Asia Pacific, Middle East and Africa

Extrapolated from various data

IVUS penetration in Vietnam (2017-2018)

Hospital	2017 PCI	2017 Sales (Units)	2017 IVUS Top 10	IVUS Penetration	2018 Sales (Q1-Q2)	2018 PCI (Q1-Q2)	2018 PENTRATION
MUH	1128	141	1	12.5%	199	502	39.6%
Bach Mai Hospital	2769	33	2	1.2%	206	1981	10.4%
Hanoi Heart Hospital	1275	27	3	2.1%	15	655	2.3%
Cho Ray Hosp	2309	11	4	0.5%	10	1400	0.7%
HCMC Heart Inst	1071	9	5	0.8%	2	453	0.4%

VietNam (2018): IVUS penetration = 2%

UMH (2018): PCI = 1257 cases, IVUS = 666 cases; IVUS penetration = 53%

Data from IVUS commercial company

Conclusions

- **IVUS penetration in Vietnam is low.**
- **IVUS should be used more in daily practice:**
 - 1. Choosing strategies**
 - 2. Getting Optimal stent implantation**
 - 3. Preventing complications**

Thank you for your attention