IVUS USED TO DETECT LEFT MAIN LESION

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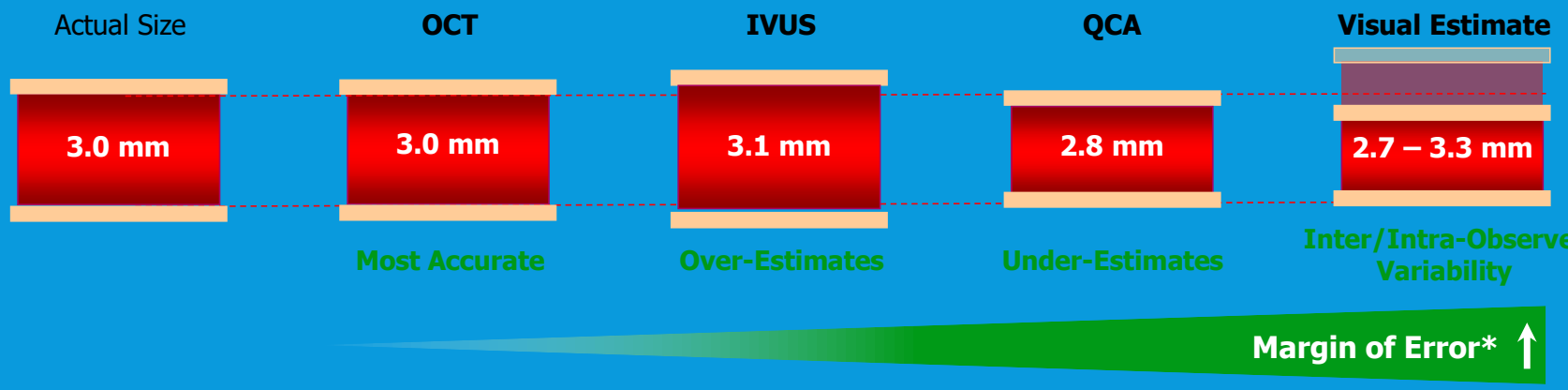
BACKGROUND

2014 ESC/EACTS Guidelines on Myocardial Revascularization

IVUS in selected patients to optimize stent implantation.	IIa	B	702,703,706
IVUS to assess severity and optimize treatment of unprotected left main lesions.	IIa	B	705
IVUS or OCT to assess mechanisms of stent failure.	IIa	C	

Hong et al. JAMA. 2015;314(20);
Tian et al. EuroIntervention 2015;10:1409-1417;
kim et al. Circ Cardiovasc Interv. 2015

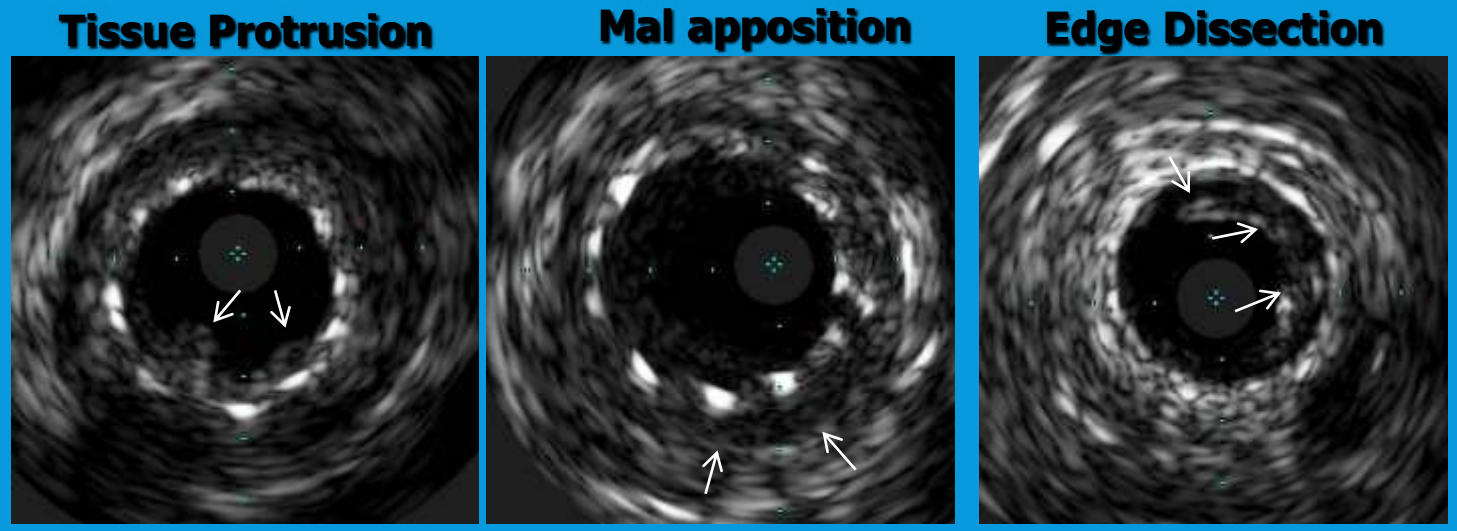
- **Sizing Variability:**
  - Sizing accuracy can vary by 0.3 mm depending on imaging modality used
  - Recognize the risk of under/over-estimating vessel size by visual estimation



* Margin of error estimates based on resolution for each imaging modality: Resolution of OCT and IVUS: Bezerra, H.G., J Am Coll Cardiol.: C*ardiovasc Interv.* 2009; 2: 1035. Resolution of QCA: Dahm, J. and van Buuren, F. *Int J Vasc Med.* 2012. Offset and variability of visual estimate: data on file at Abbott Vascular.

IVUS QUALI-/QUANTITATIVE MEASUREMENTS

- Intra-Stent Tissue Protrusion/Thrombus
- Stent Strut Malapposition
- Edge Dissection
- Expansion



P S P IVUS/OCT TO OPTIMIZE STENTING

P PREPARE THE LESION

OBJECTIVE

- Prepare lesion to receive scaffold
- Facilitate delivery
- Enable full expansion of pre-dilatation balloon to facilitate full scaffold expansion

S SIZE APPROPRIATELY

OBJECTIVE

- Accurately size the vessel
- Select appropriate scaffold for "best fit"

P POST-DILATE

OBJECTIVE

- Achieve <10% final residual stenosis
- Ensure full strut apposition

Wright, RS, et al., Circulation. 2011; 123: 2022-2060. / Wijns, W, et al., European Heart Journal. 2010; 31: 2501-2555. / Levine, GN, et al., Circulation. 2011; 124: 2574-2651. / Steg, PG, et al., European Heart Journal. 2012; 33: 2569-2619. / O'Gara, PT, et al., Circulation. 2013; 127: 529-555.

PSP IVUS/OCT TO OPTIMIZE STENT

P PREPARE THE LESION

IVUS: Plaque morphology

OBJECTIVE

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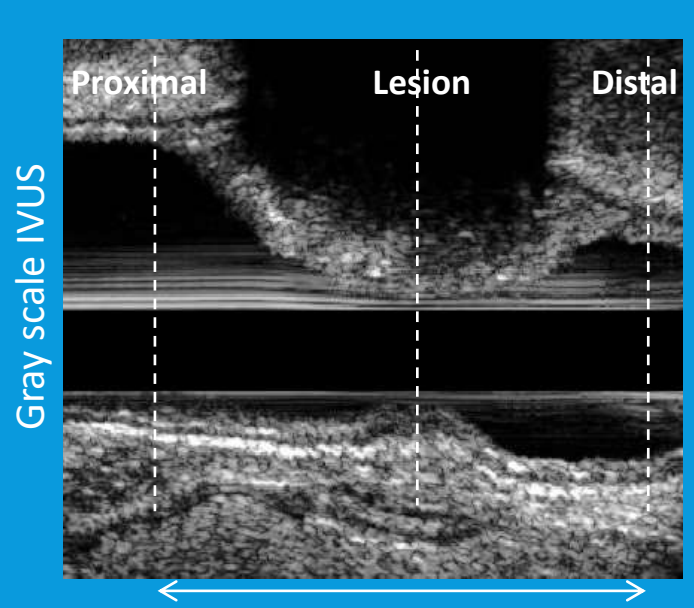
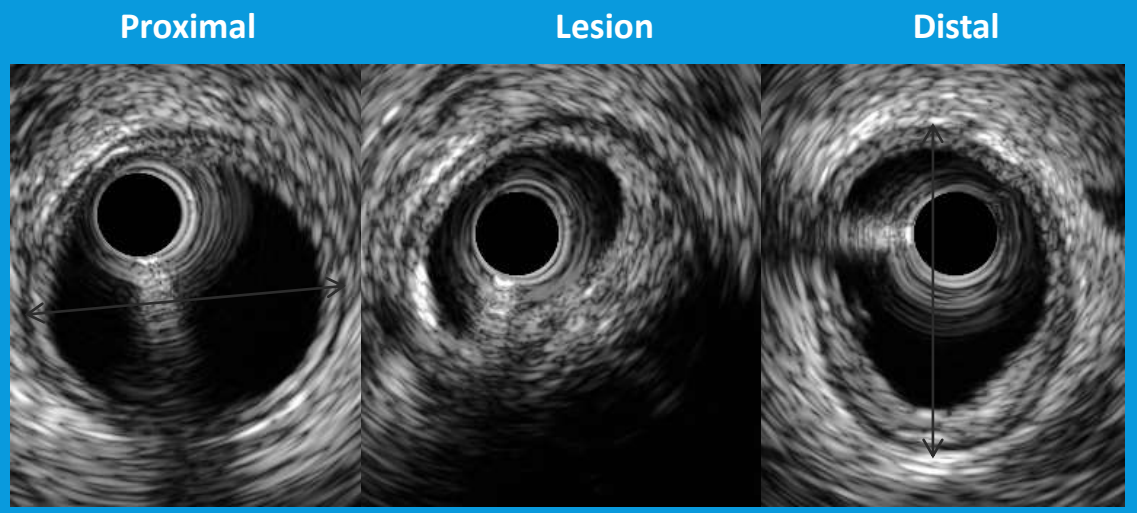




CONCLUSIONS

- Clinical evidence showing the benefits of IVUS-guided PCI is overwhelming
- All relevant measurements can be easily obtained by IVUS analysis
- IVUS should remain the imaging modality of choice for all coronary interventions

PREVIOUS PATIENT'S HISTORY

- 65 years old man, no history of DM, HTN, smoking, ethanol.
- No significant surgical history
- Physically active
- BMI-20
- Undergone coronary angiogram on 2014 for one episode of chest pain with sweating at other hospital in India, which showed mild pLAD disease otherwise normal.
- Medications: Ecosporin 150mg and Atorvastatin 20mg followed by CAG.

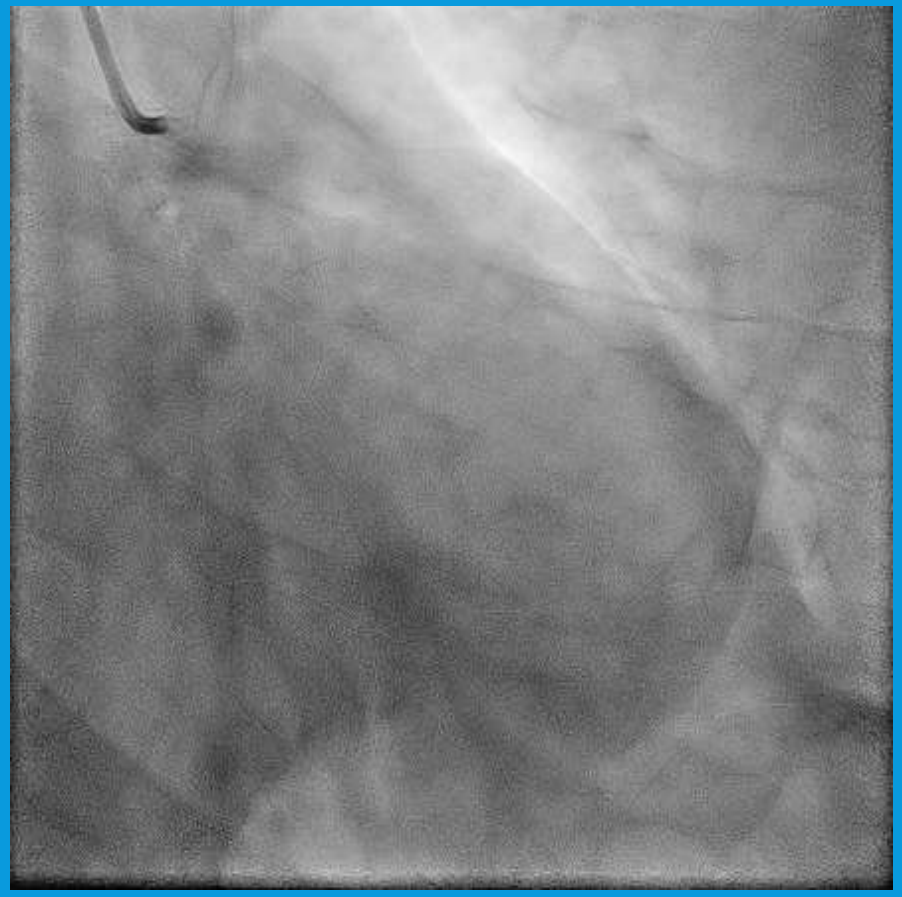
CURRENT INVESTIGATIONS

- In 2018, sep 15 morning had one episode of severe diaphoresis with chest pain lasted for 10min and relieved at rest.
- Arrived in emergency for further treatment.
- ECG- no significant changes.
- Echocardiogram- Mild Antero Lateral Hypokinesia with pLVEF.
- Cardiac Troponin: Negative.
- CXR- Normal, O2 – at room air 96%.
- Lungs clear, and sounds are normal

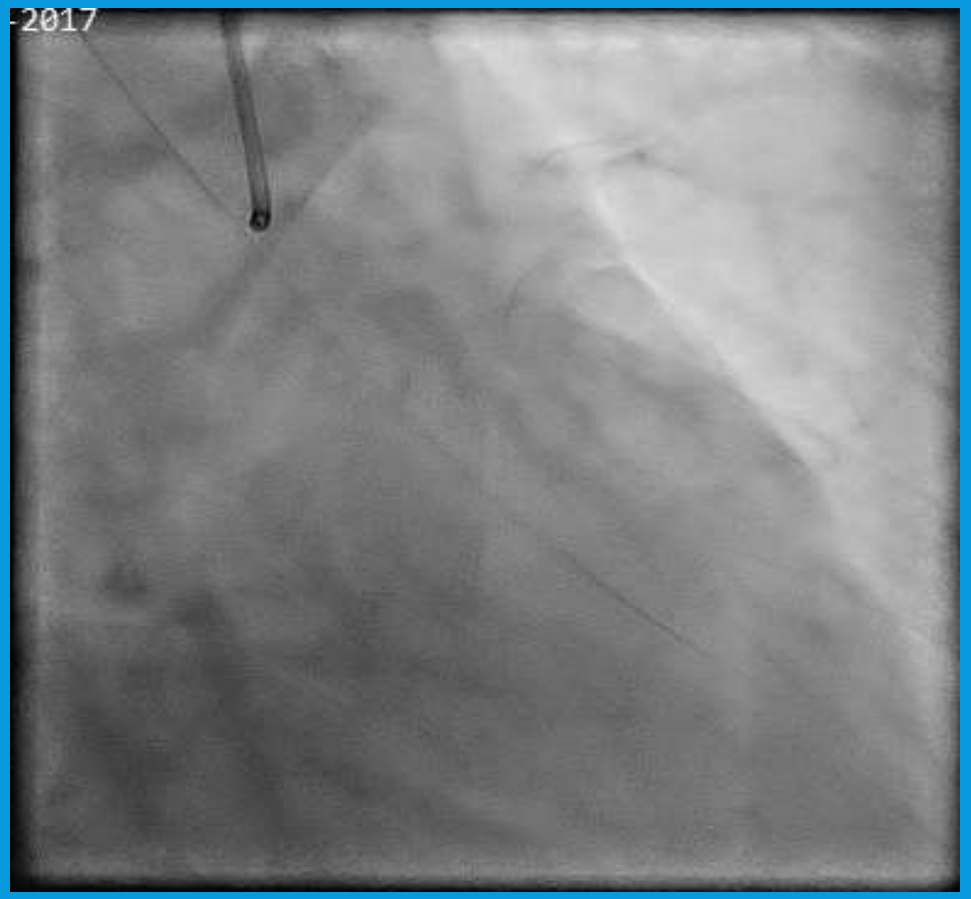
TREATMENT GIVEN

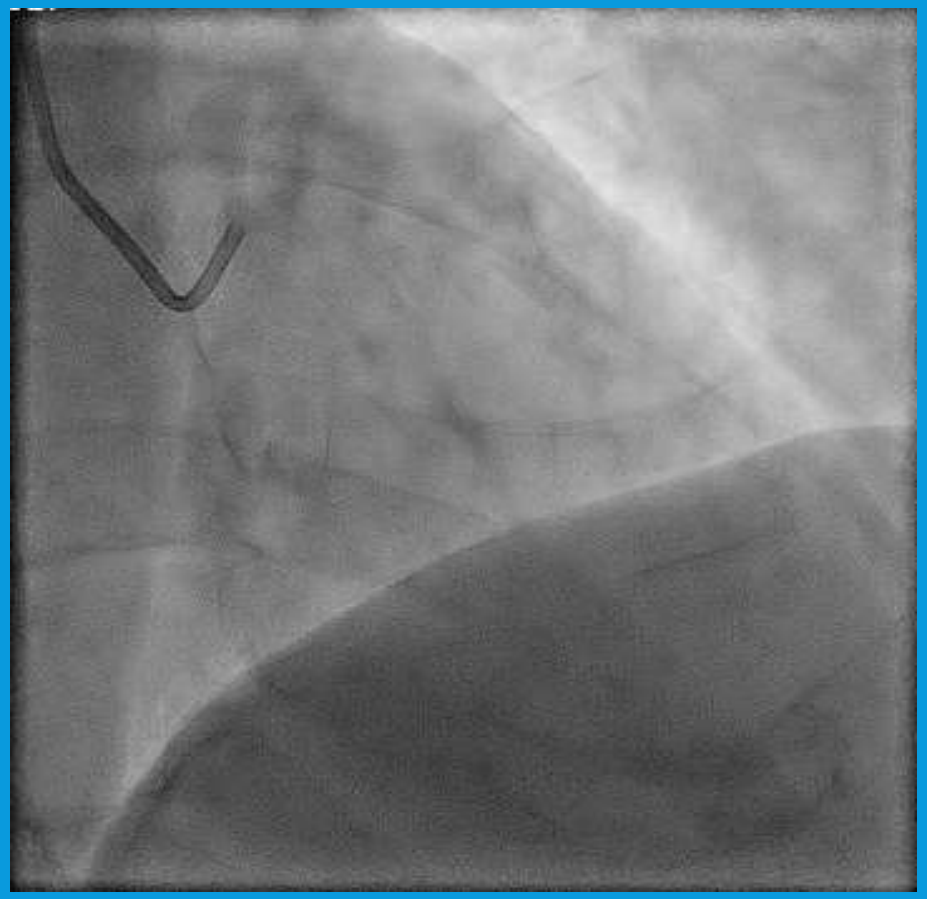
- Ecosporin 150mg
- Atorvastatin-20mg
- Mononitrate- 20mg BID
- Trimetazidine 35mg BID
- Performed treadmill test after one week and found moderately positive at 9min of exercise.
- Planned angiogram the next day.

AGIOGRAPHIC FINDINGS

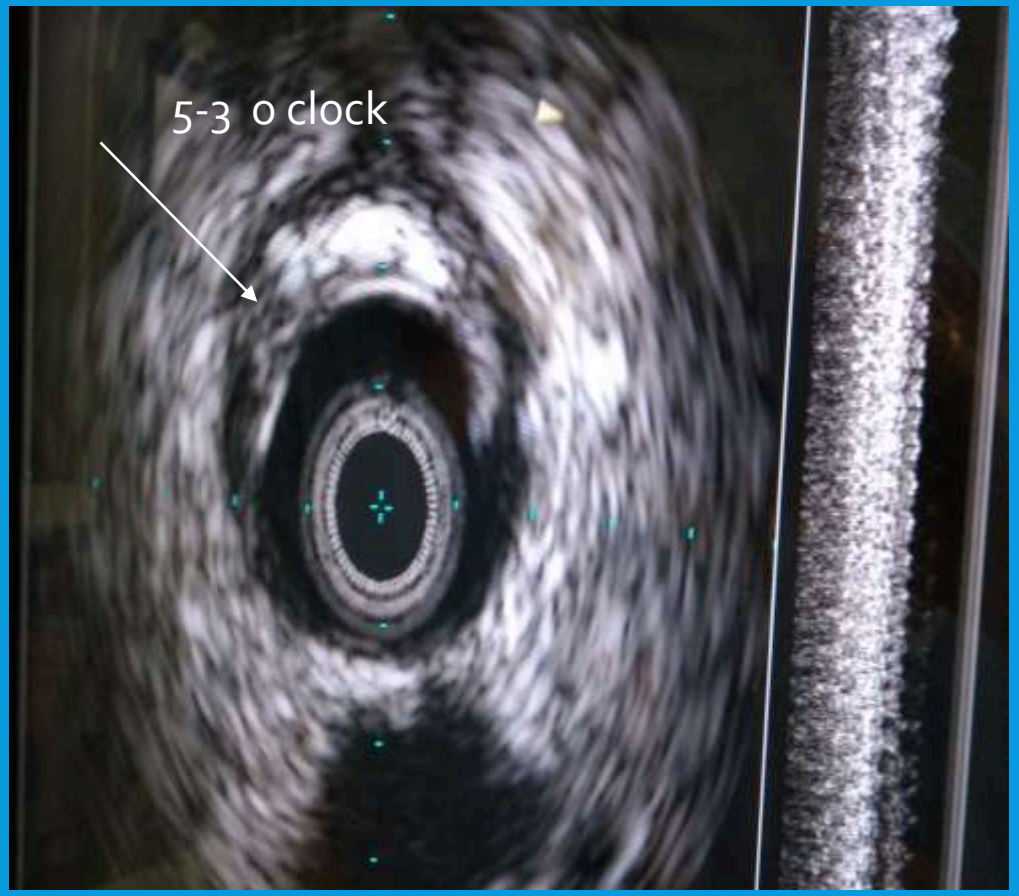


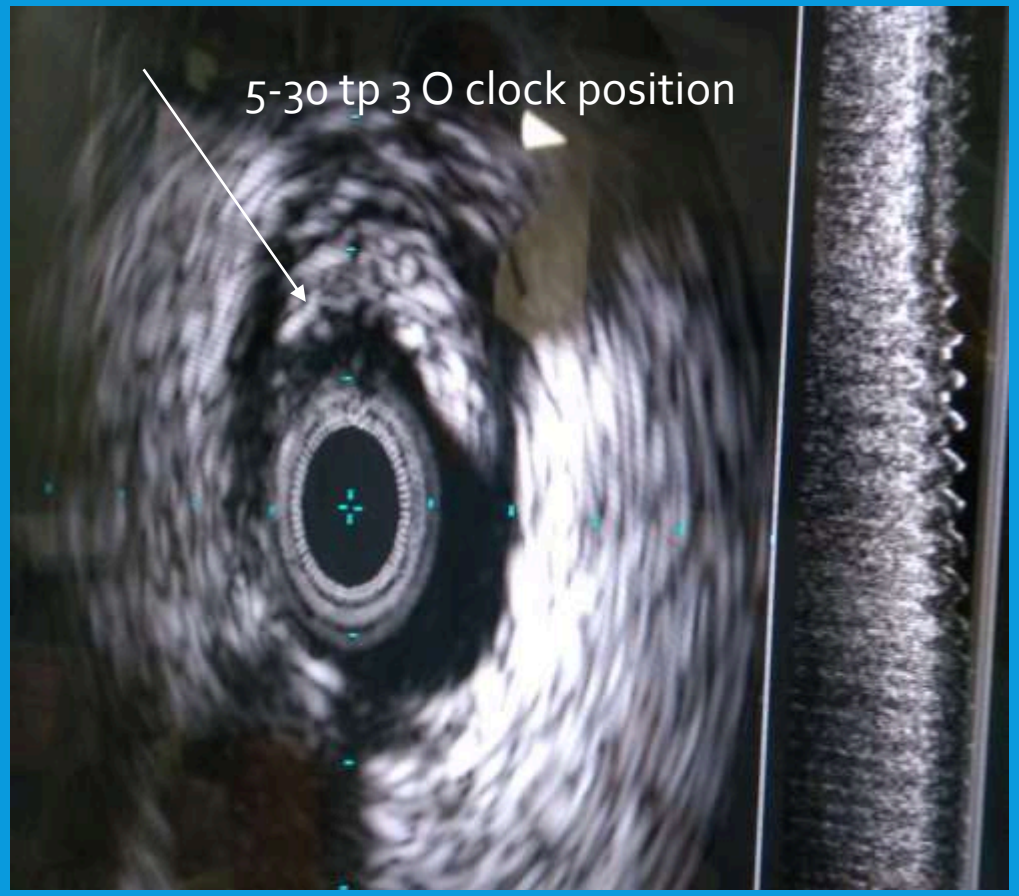
ANGIOGRAM IN ALL VIEWS



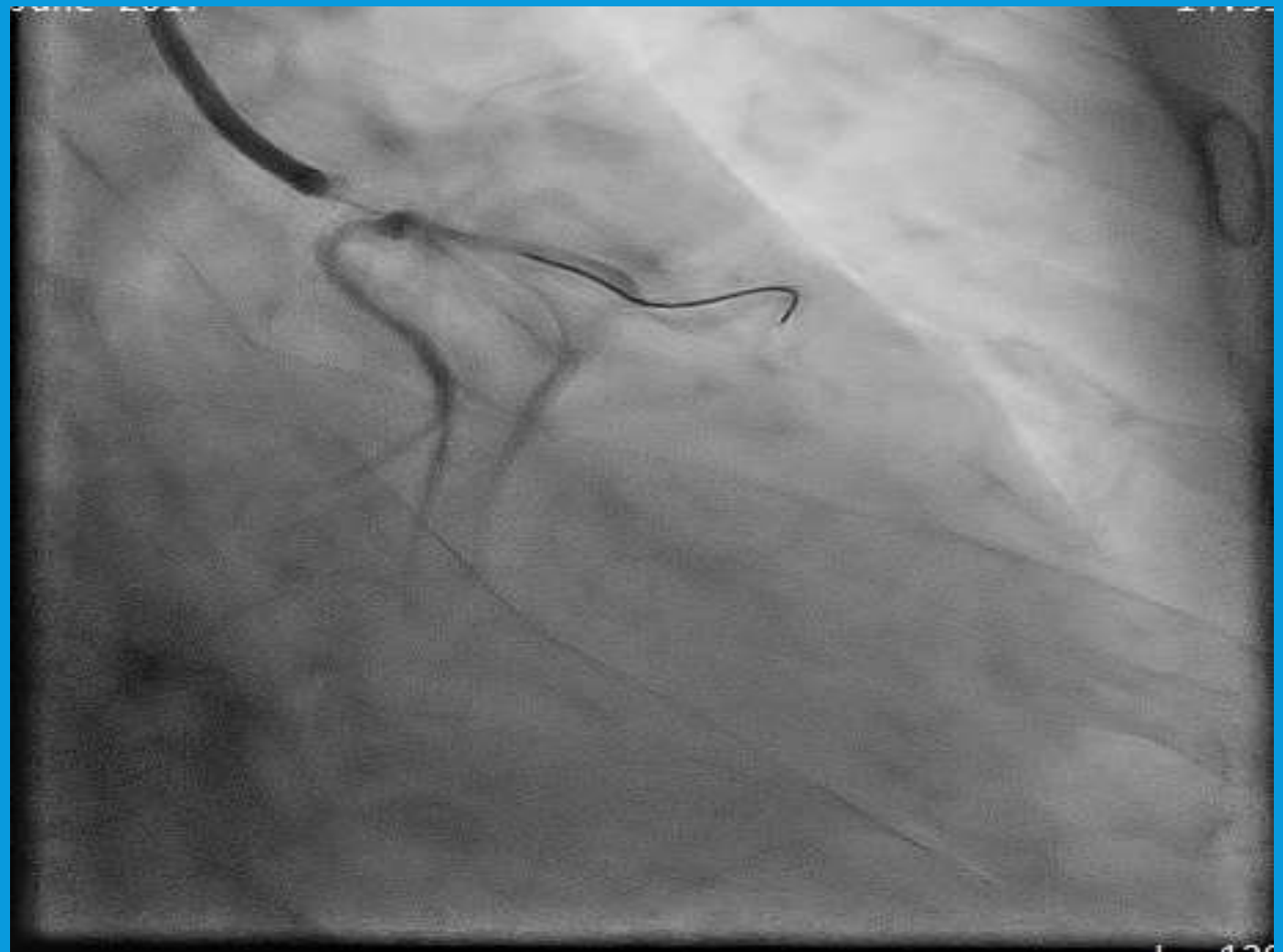


IVUS IN LM TO LAD

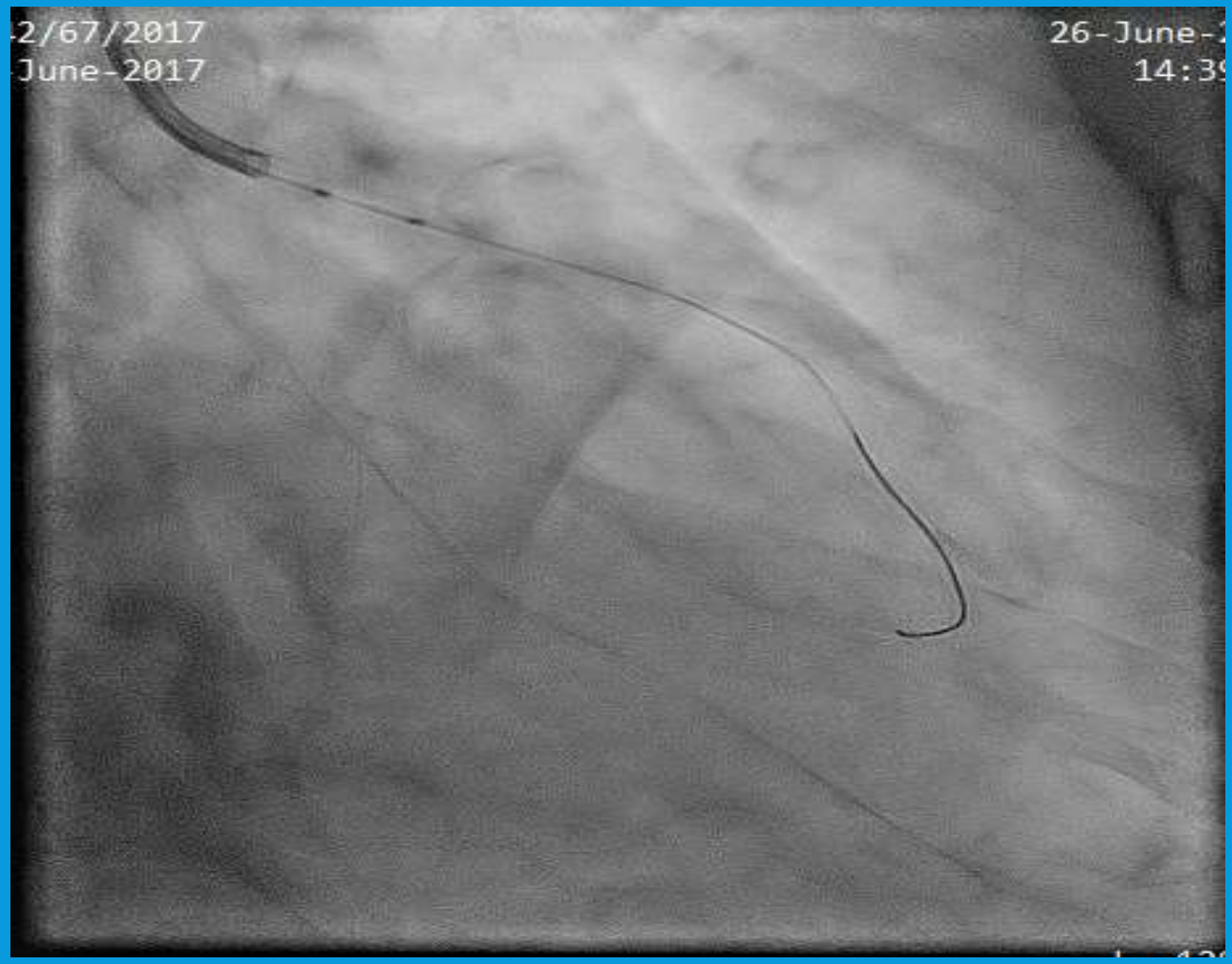




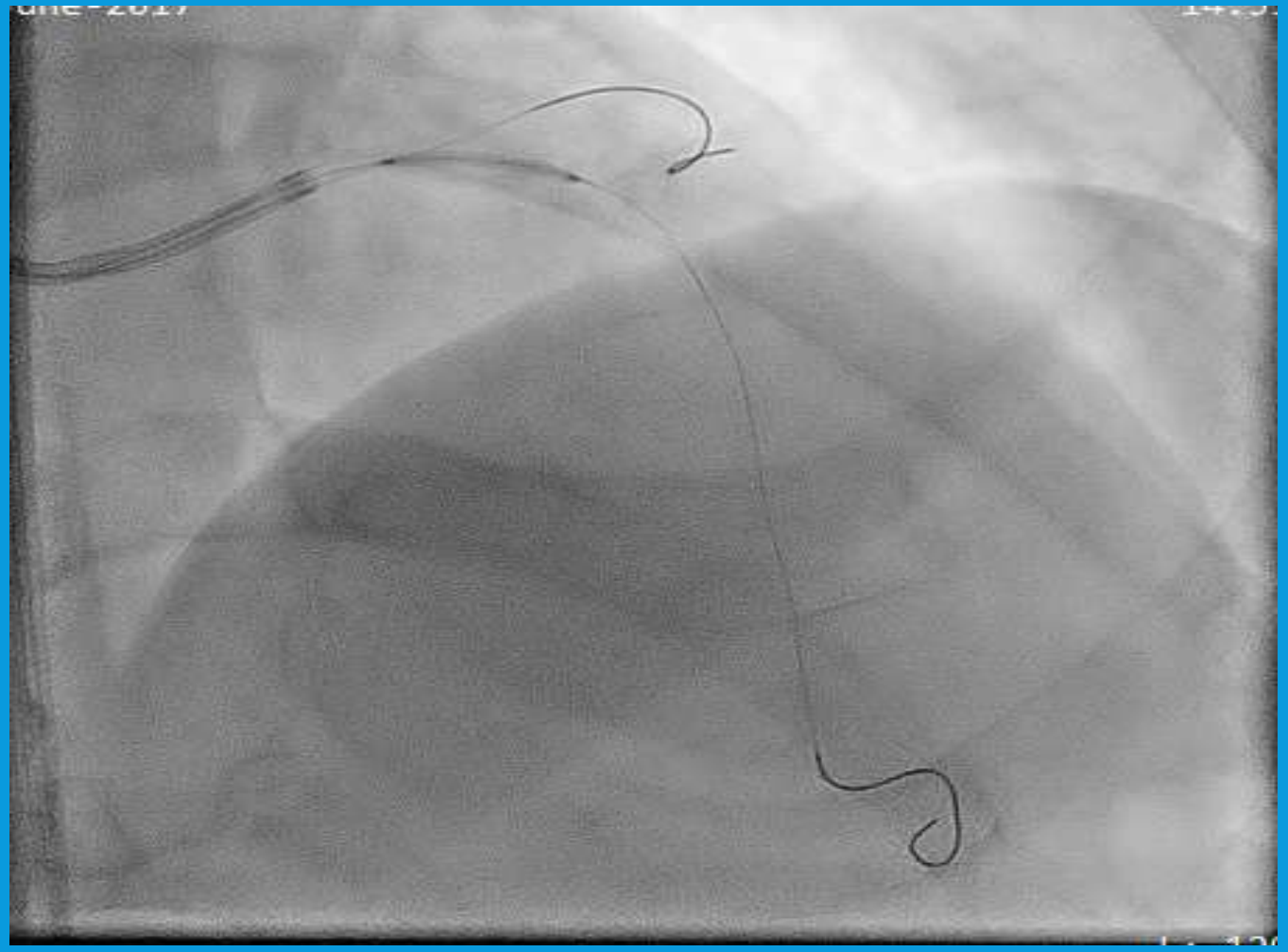
WIRING LAD WITH BMW



PREDILATATION WITH 2.5/10MM NC BALLOON

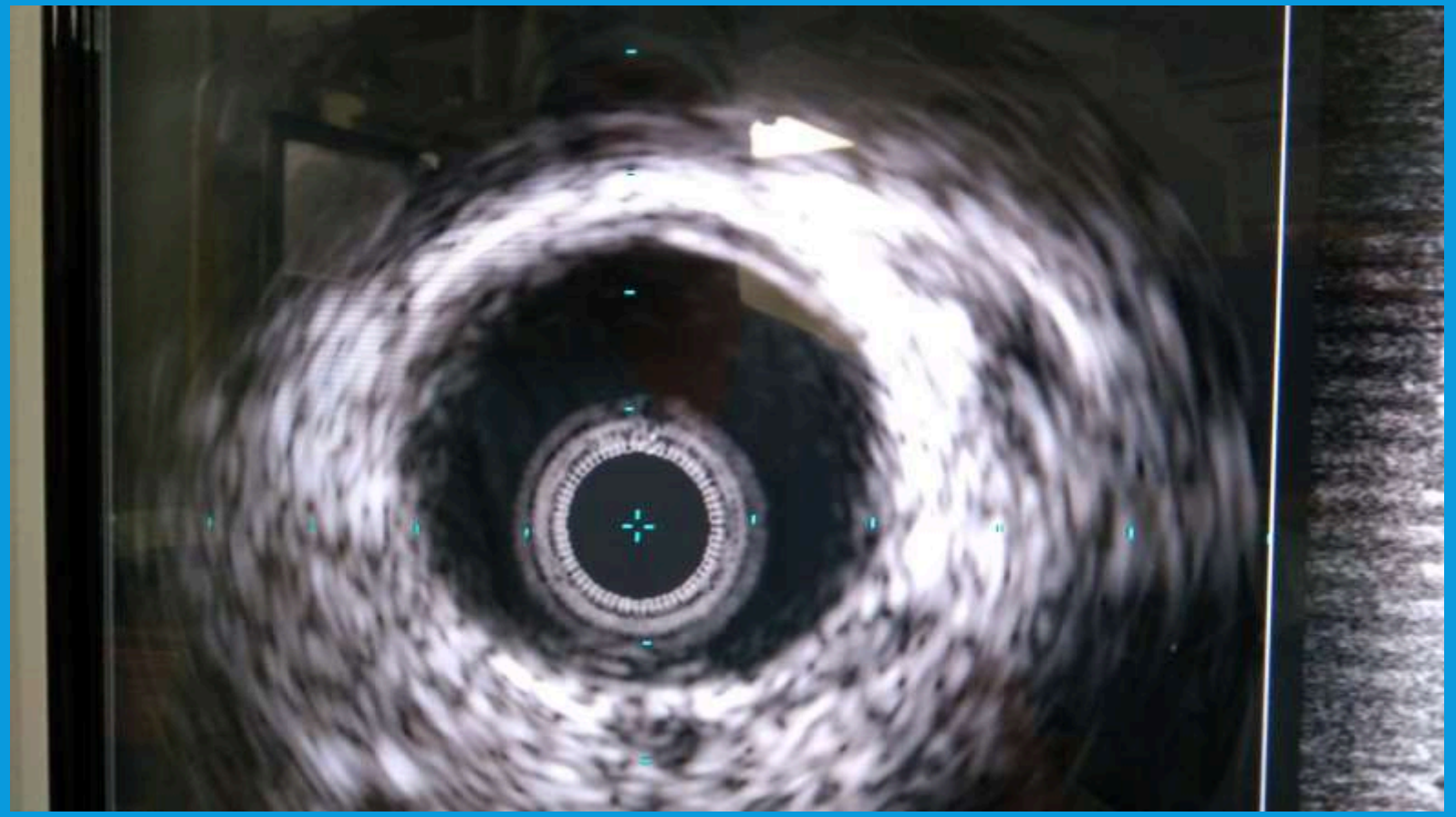


STENTING LM-LAD 3.5/16MM XIENCE EX



FINAL ANGIOGRAM

FINAL IVUS



INCATH LAB CARE

- Loading dose of ASA 325 mg
- Atorvastatin 80 mg
- Bivalirudin bolus based on weight
- Bivalirudin continues infusion during PCI, and stopped after the procedure.
- No procedural complications occurred.

WHAT WE LEARN FROM THIS?

- Without this IVUS, we have missed the lesion in distal left main at episodic of chest pain.
- Patient could have developed STEMI and shock.
- No option non other than IVUS, and we can say IVUS only saved the patient.

APART FROM TRADITIONAL USE OF IVUS

- In tortuous , trifurcating and unseen lesions, IVUS or OCT is the only available option.
- Don’t leave the patient without conforming all the coronary arteries.
- Most of the time patients with chest pain, assumed normal coronaries have been diagnosed as neurological or Psycho somatic disorders.
- Unintentional psychiatric drugs may worse the further in major depressive disorder.
- 1-3% hidden lesions in coronary arteries are missed during angiographic interpretation. i.e. ostial, eccentric, bifurcation, trifurcation and tortuous vessels.

THANK YOU VERY MUCH FOR YOUR KIND ATTENTION

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