



**Rocky mountain CHIP PCI with rocks all along**  
**Protected PCI in ACS with heart failure, PAD and**  
**high bleeding risk**  
**(Image Guided)**

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**MD,DNB,DM,DNB,MNAMS,FESC,FACC,FSCAI**

**CONSULTANT CARDIOLOGIST**

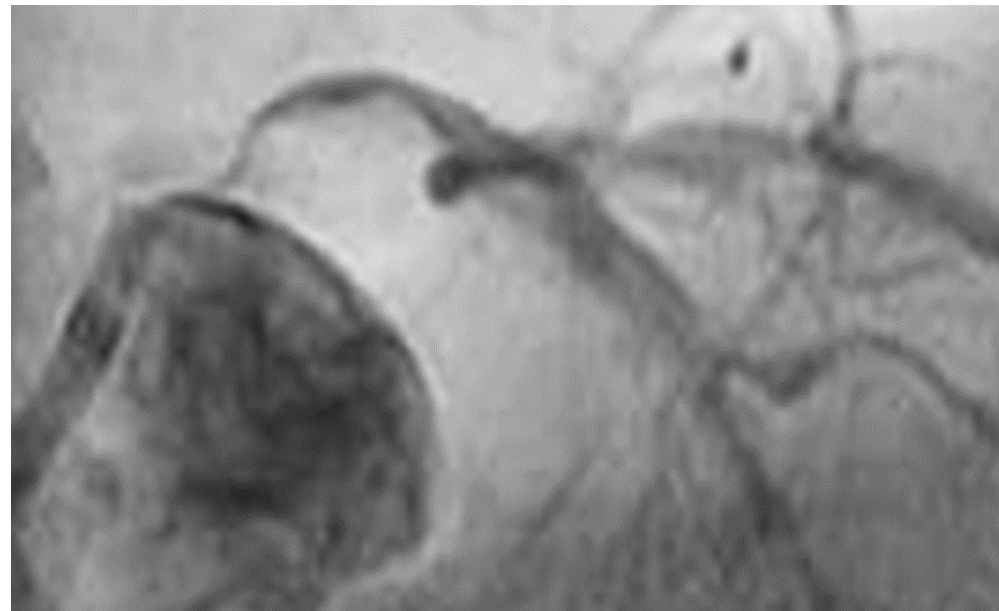
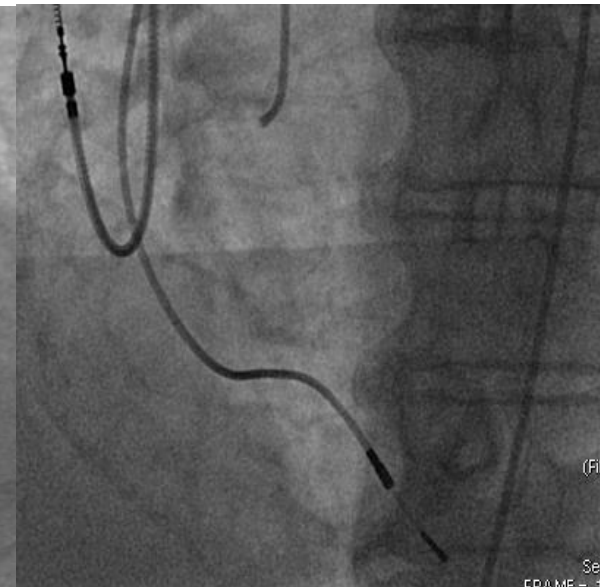
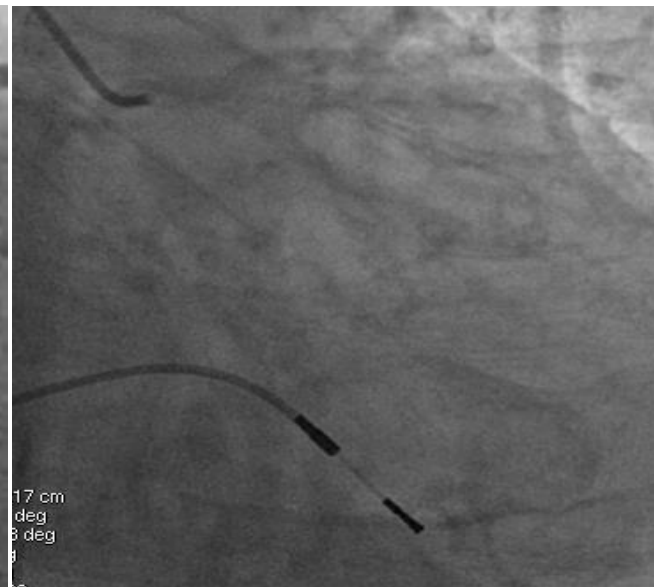
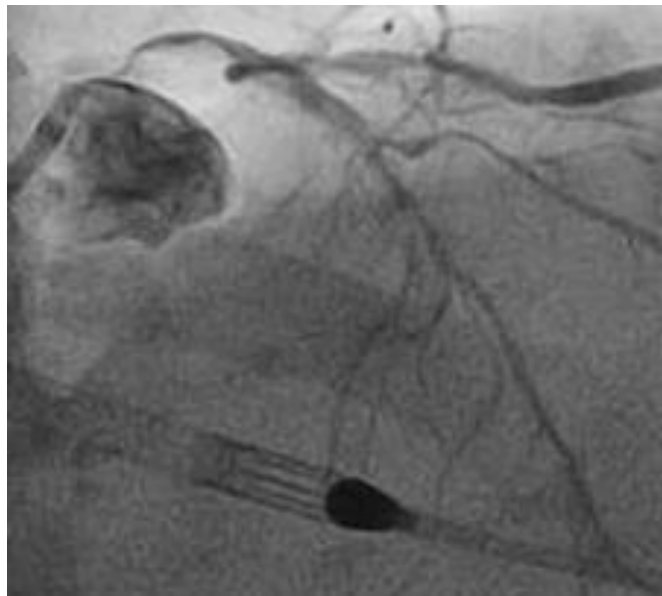
**SPECIALIST IN INTERVENTIONAL CARDIOLOGY**

**KAUVERY HOSPITAL, CHENNAI**

**81yrs elderly male, walks 7Km daily c/o Exertional angina limiting to 1km and fast progressing angina during ADL.**

## SIGNIFICANT CO MORBIDITIES

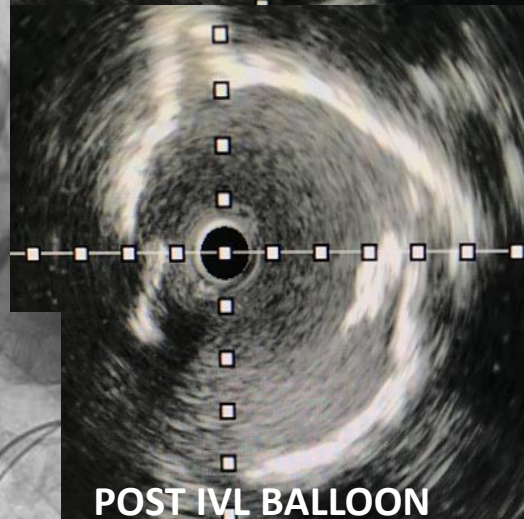
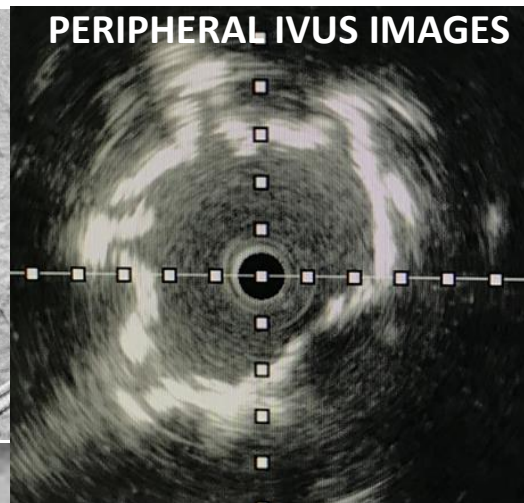
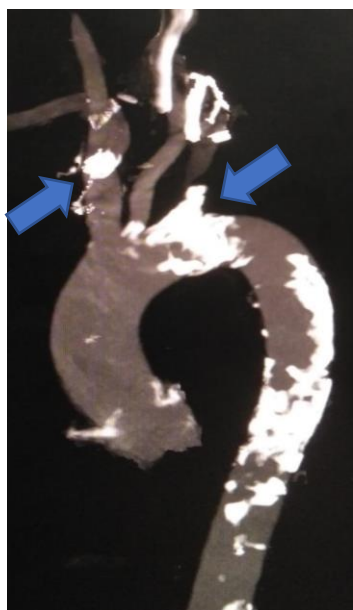
- Systemic Hypertension:  
RUL BP 98/62 & LUL 86/60, BLL BP 178 / 95
- Recent Diabetes Mellitus – HbA1C 6.5%
- Dyslipidemia
- Sick Sinus Syndrome on DDDR Pacemaker since 2013
- Chronic Atrial Fibrillation on Dabigatran 110mg BID for 4 years - no events: (CHA<sub>2</sub>DS<sub>2</sub>-VASc Score 5) (HASBLED Score 4)
- S/P Ca Prostate in remission x 4years: S.PSA 0.11
- Chronic Emphysema on Inhalers
- Obesity – BMI 31kg/sq.M
- OSA uses BiPAP at night during sleep for 8years
- PAD → Differential BP values in limbs
- CKD - eGFR ~ 48.03ml/min (S Creatinine 1.37mg/dL)
- Anemia Hb: 11.2g/dL
- CT Aortogram → Significant to critical stenosis of Coeliac / SMA / IMA vessels and calcific occlusion of both Subclavian arteries
- First echo: No RWMA; LVEF ~58%, No MR
- Trop-I normal
- After 4 days: developed NSTEMI with Acute LVF and requiring NIV
- Echo after NSTEMI: Grade 3 MR, EF ~36%, Severe PAH
- Trop I >4.0ng/ml
- AKI: S Creatinine: 1.8mg/dL
- NT pro BNP >4300





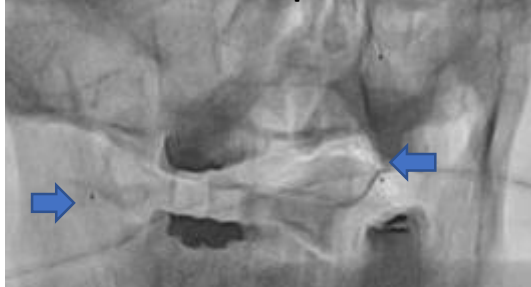
# Bilateral Subclavian arteries calcific total occlusion

CT Aortogram / DSA / PERIPHERAL IVL to Right Subclavian artery for access to CHIP PCI



Bilateral Cerebral protection  
Bilateral Carotid Spider Fx Filter

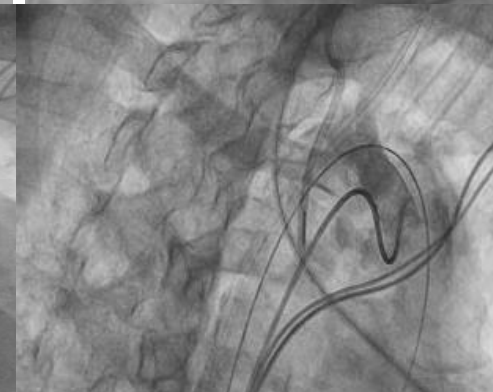
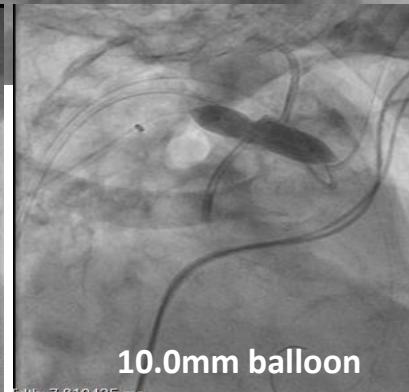
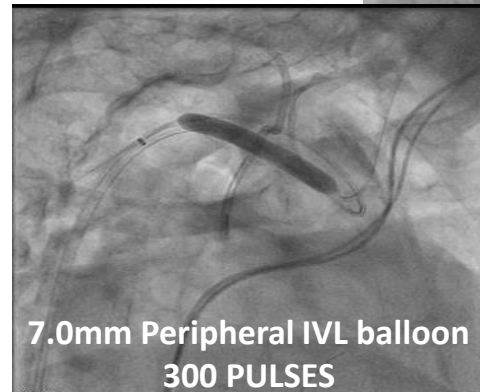
3.0mm OPN NC balloon



POST IVL BALLOON  
Equalization of Pressures  
of Aortic and Subclavian

No neurological events

USG guided  
Rt Brachial  
artery access



7.0mm Peripheral IVL balloon  
300 PULSES

10.0mm balloon

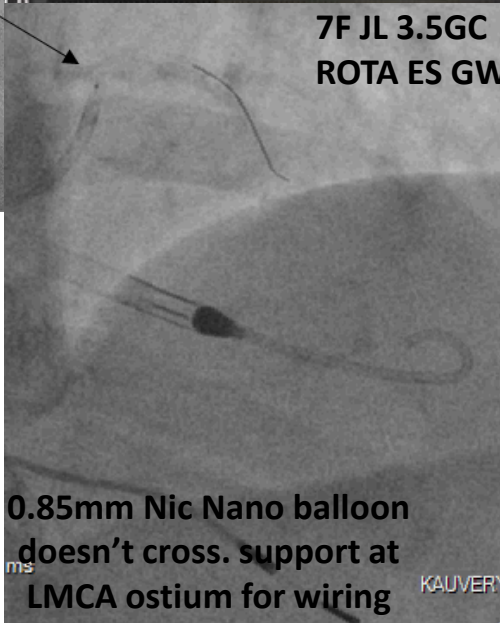
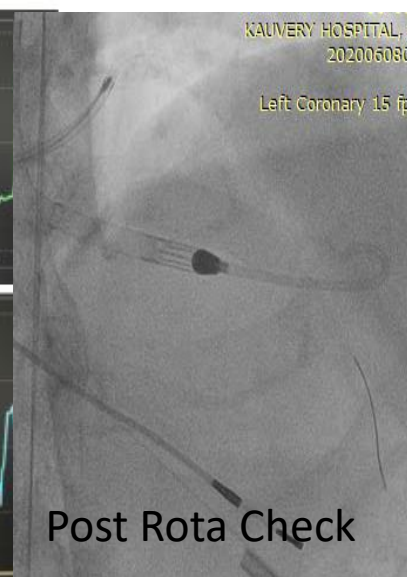
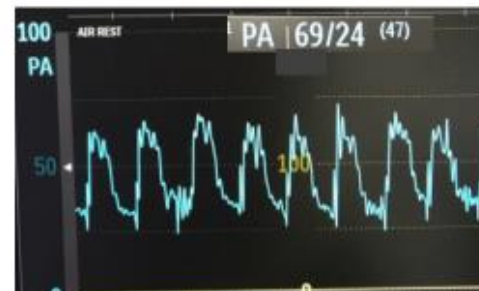
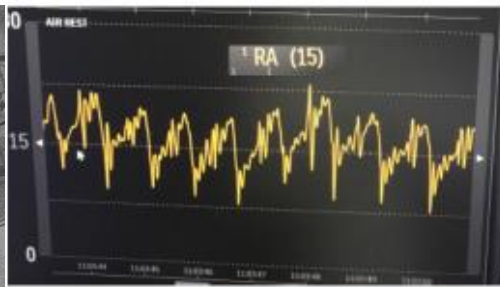
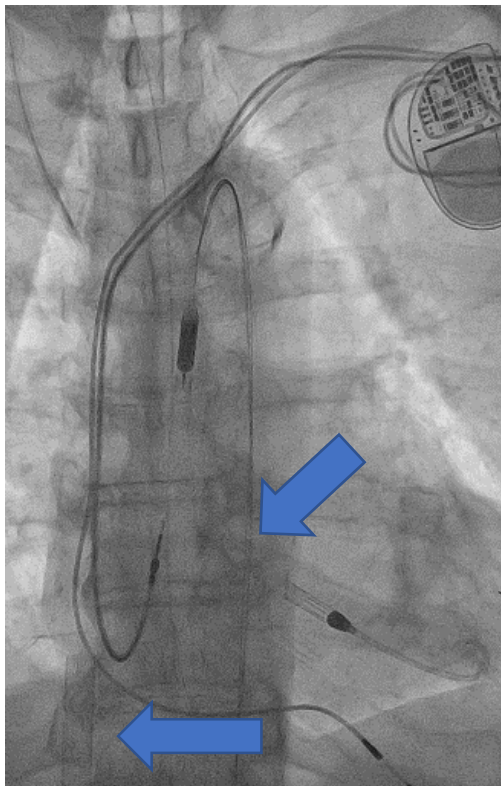
## Stage 2: 24hours later under GA in HYBRID OR

BASELINE HEMODYNAMIC CATH STUDY and Access points

Rt CFA Impella CP

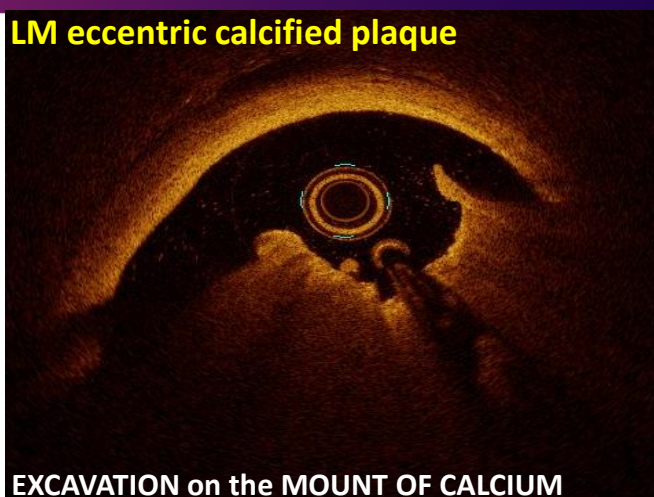
Lt.CFA ECMO Arterial / Lt.CFVn ECMO Venous

Right Brachial artery for CHIP PCI Rt.CFVn for rt heart cath

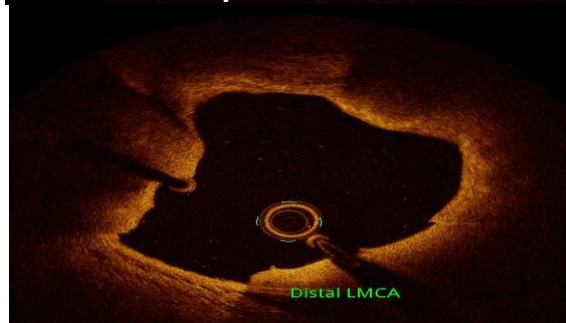




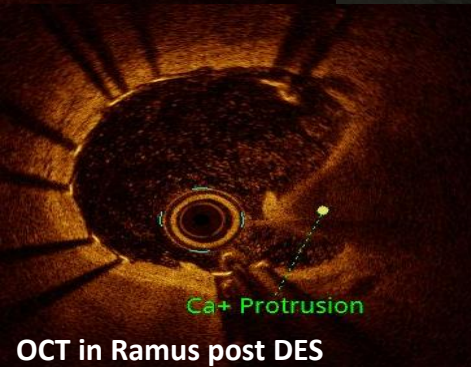
**LM eccentric calcified plaque**



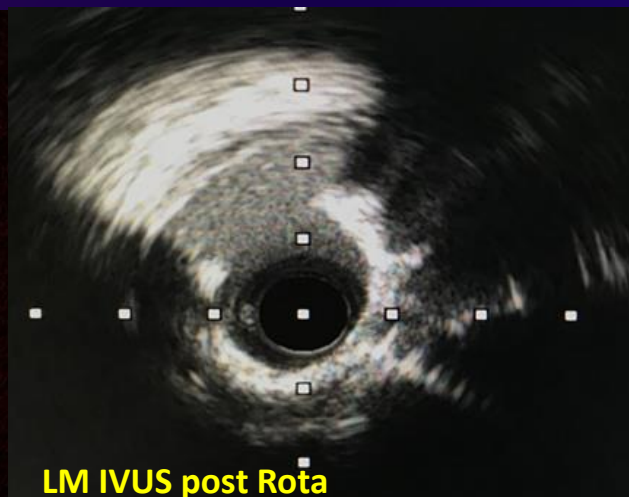
**EXCAVATION on the MOUNT OF CALCIUM  
by ROTA Burr**



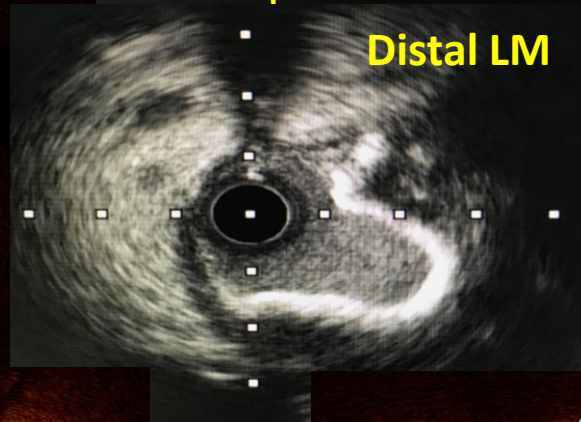
**Distal LM**



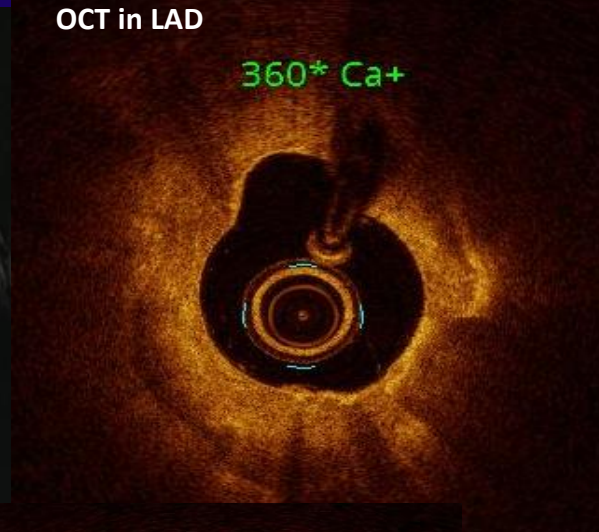
**OCT in Ramus post DES**



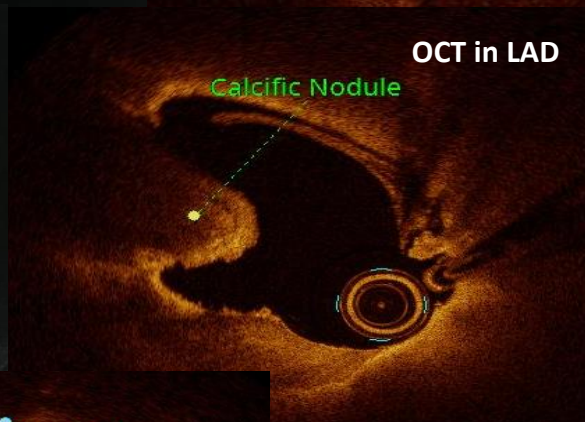
**LM IVUS post Rota**



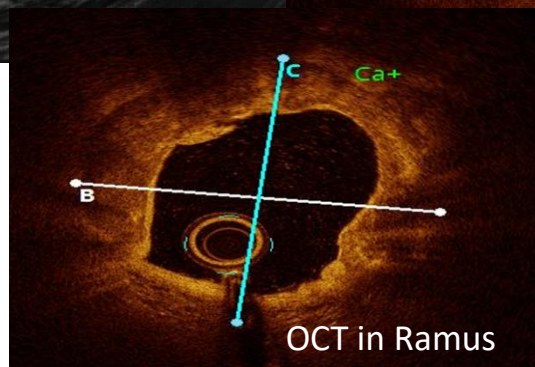
**Distal LM**



**OCT in LAD**

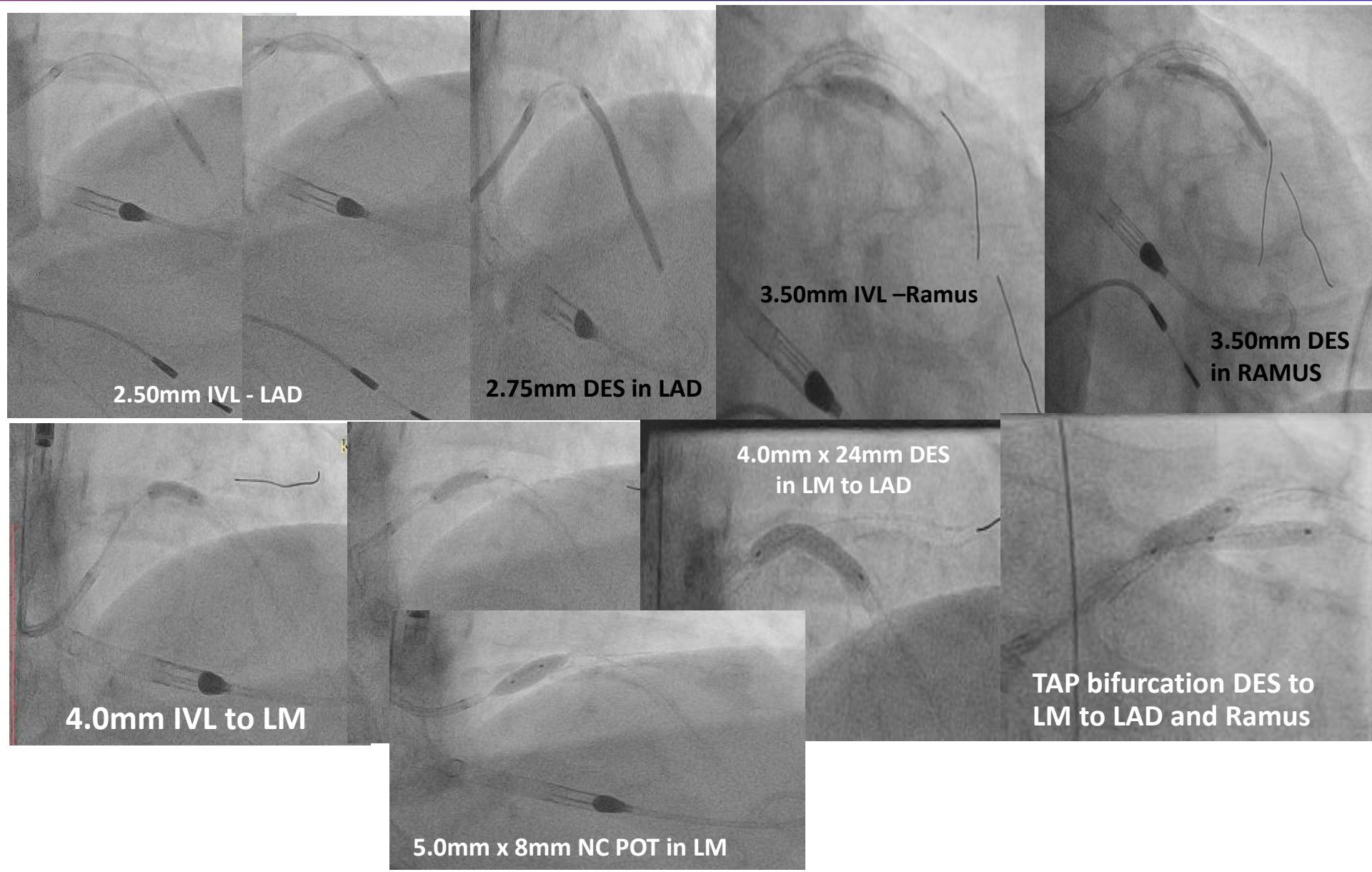


**OCT in LAD**



**OCT in Ramus**

## Post ROTABLATION – IV Lithotripsy to LAD, RAMUS and LM

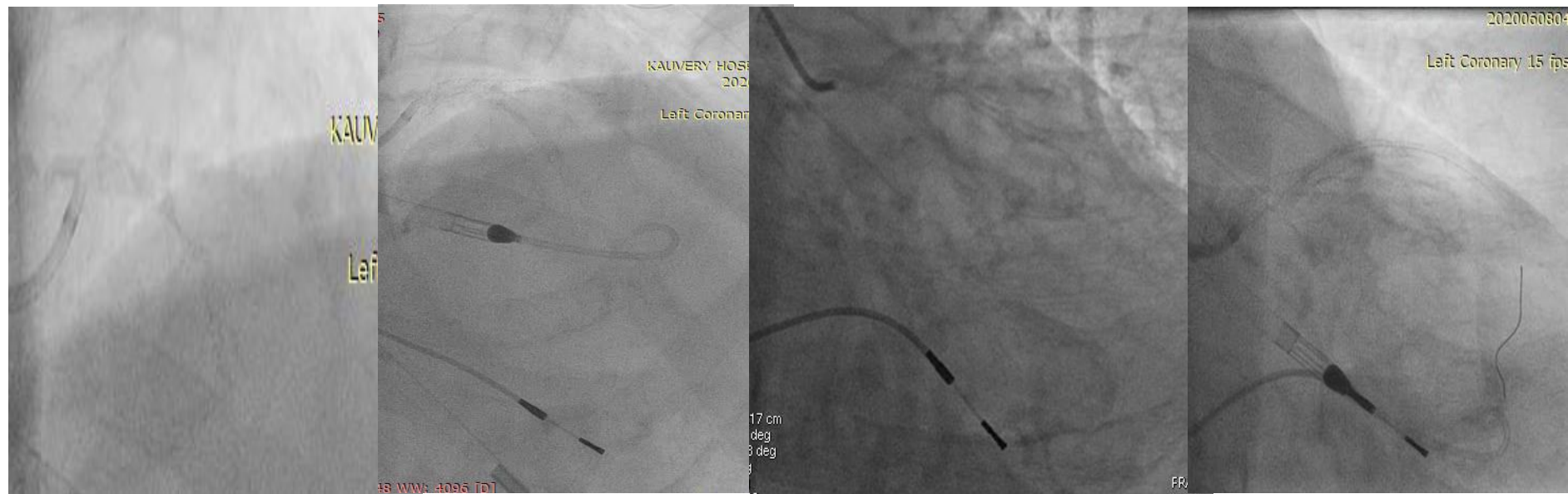




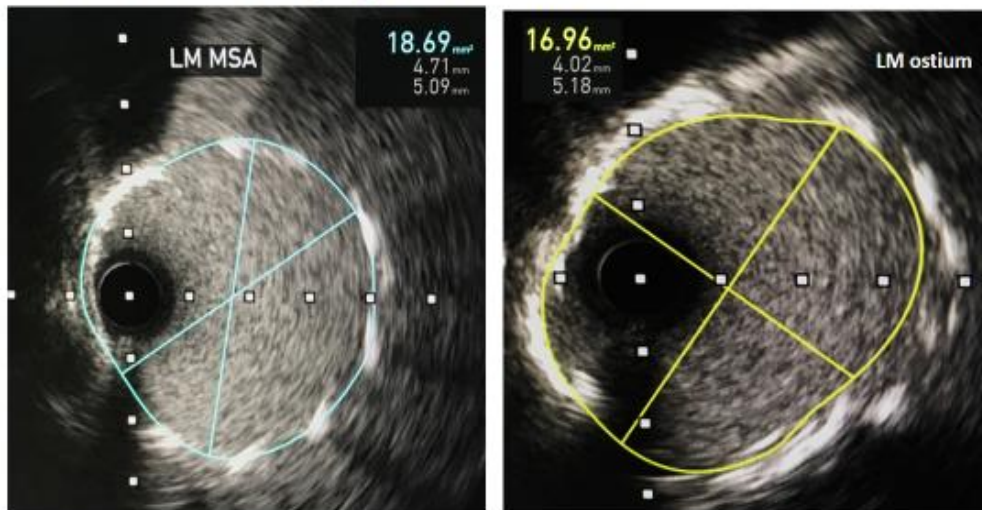
# Final check post CHIP PCI with IVUS LM

Dwelling time PCI 6hours

Impella and ECMO support weaned and removed in Cath Lab at completion of PCI.



## Post Rotatripsy / Stent to LMCA →IVUS



- discharged to home on 7<sup>th</sup> day
- re-admitted after 3days post discharge with major lower GI bleed  
– Hb drop by 3g% - BP 76/42
- **PRBC / FFP / PRAXBIND given – no further bleeding**
- UGI / Colonoscopy – Tubular adenoma with high grade dysplasia



## Impella MCS CHIP PCI for Rocky Mountain LM and Bifurcation PCI with Rocks in Subclavian artery through Peripheral IVL and Coronary Rotablation and IVL

*“Patients in the Mount Sinai Cath Lab after CV collapse during PCI, survived with good outcome not because of luck, but due to expertise of the operators and a system equipped and geared to take care of anticipated life threatening complications” Spencer King JACC Intervention Sept 2013*

**This is the first case of peripheral IVL and coronary IVL with IMPELLA + ECMO MCS facilitated CHIP PCI to be reported**  
**(ECMO was to support any LM perforation related cardiac arrest events)**

**Crucial support is maintaining the circulation by IMPELLA protecting stable hemodynamics enabling successful CHIP PCI procedure with complete revascularisation and recovery and avoid cath lab catastrophe.**

**ROTABLATION combined with IV LITHOTRIPSY is a valuable option in complex calcific critical CAD CHIP revascularisation.**