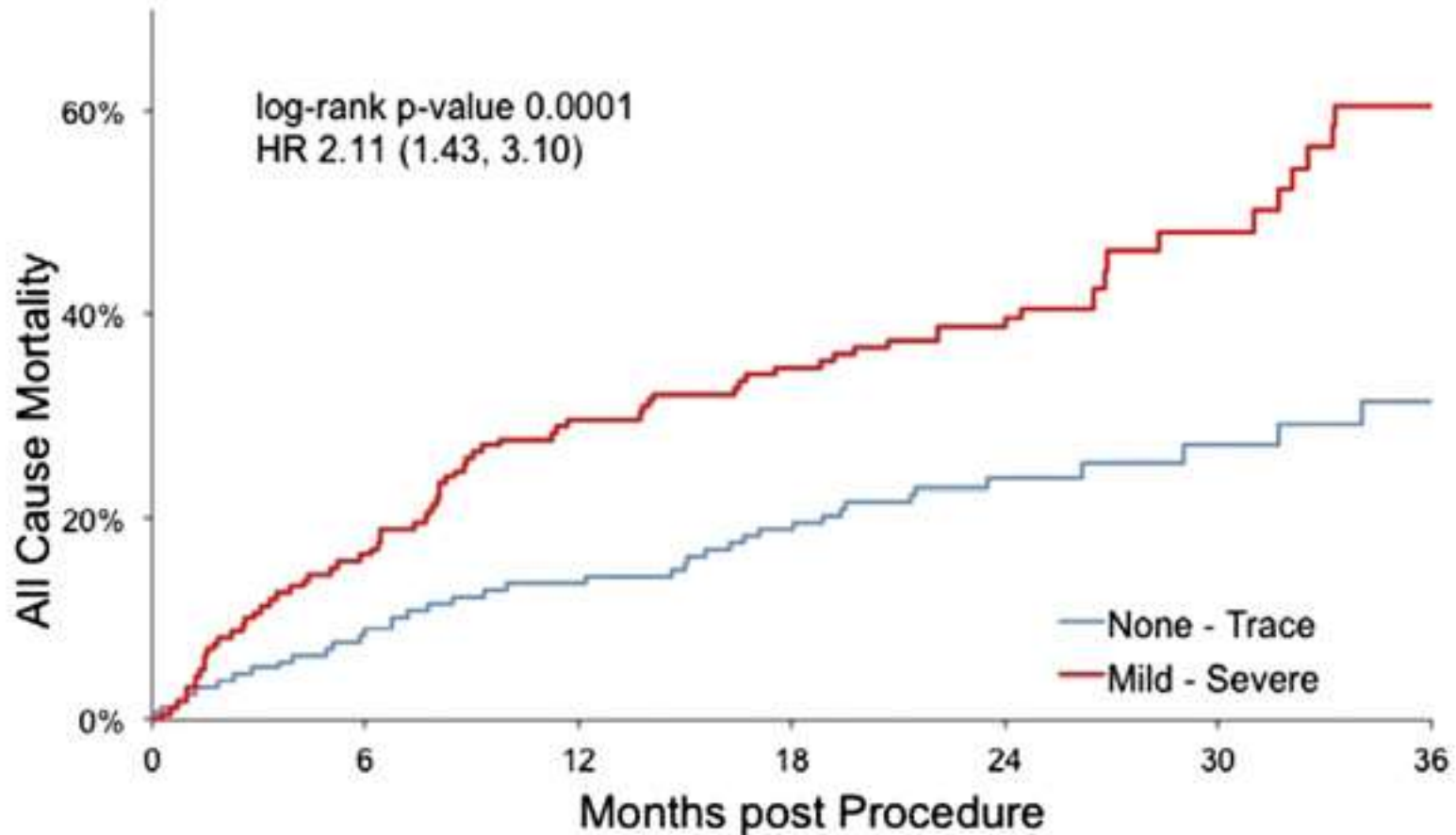


TAVR

Paravalvular Leak Closure

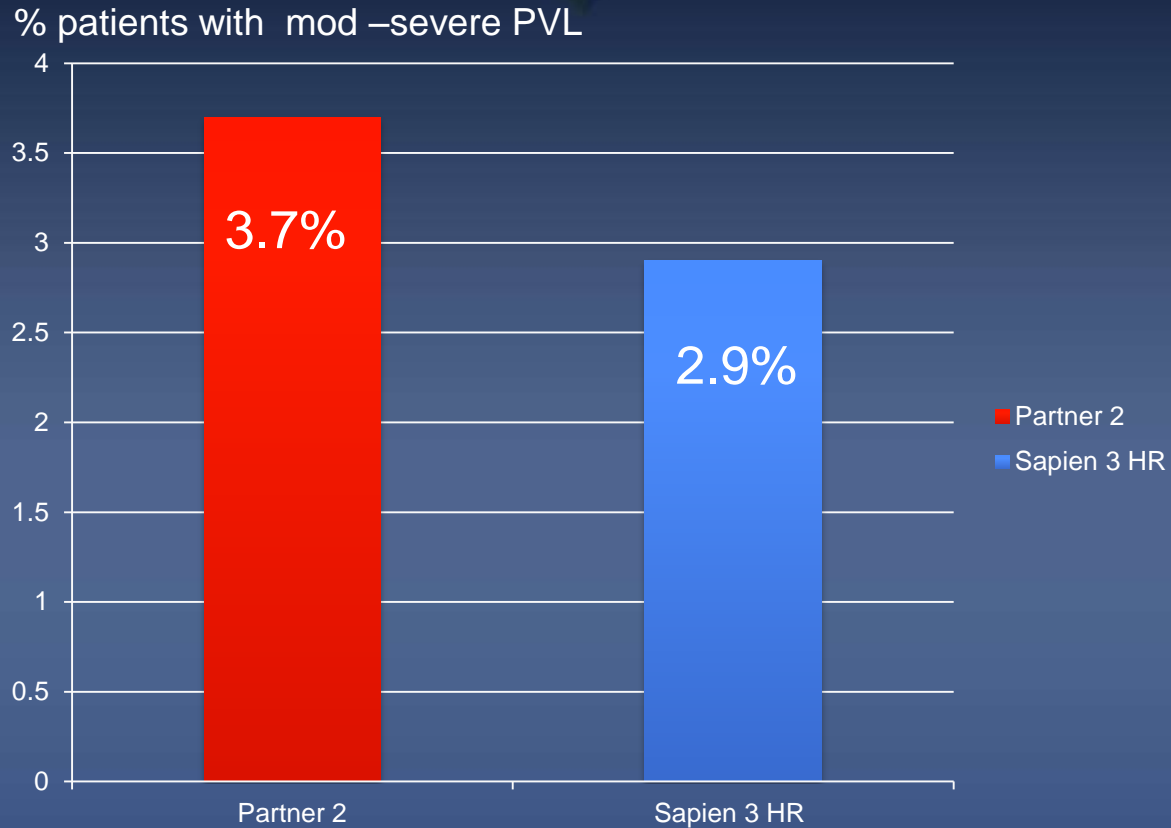
O. Christopher Raffel
Cardiology Program, Prince Charles Hospital
Queensland, Australia.

Impact of Paravalvular Leak on 2-Year All-Cause Mortality



None-Tr	158	142	134	121	84	39	15
Mild-Sev	160	134	112	101	64	26	12

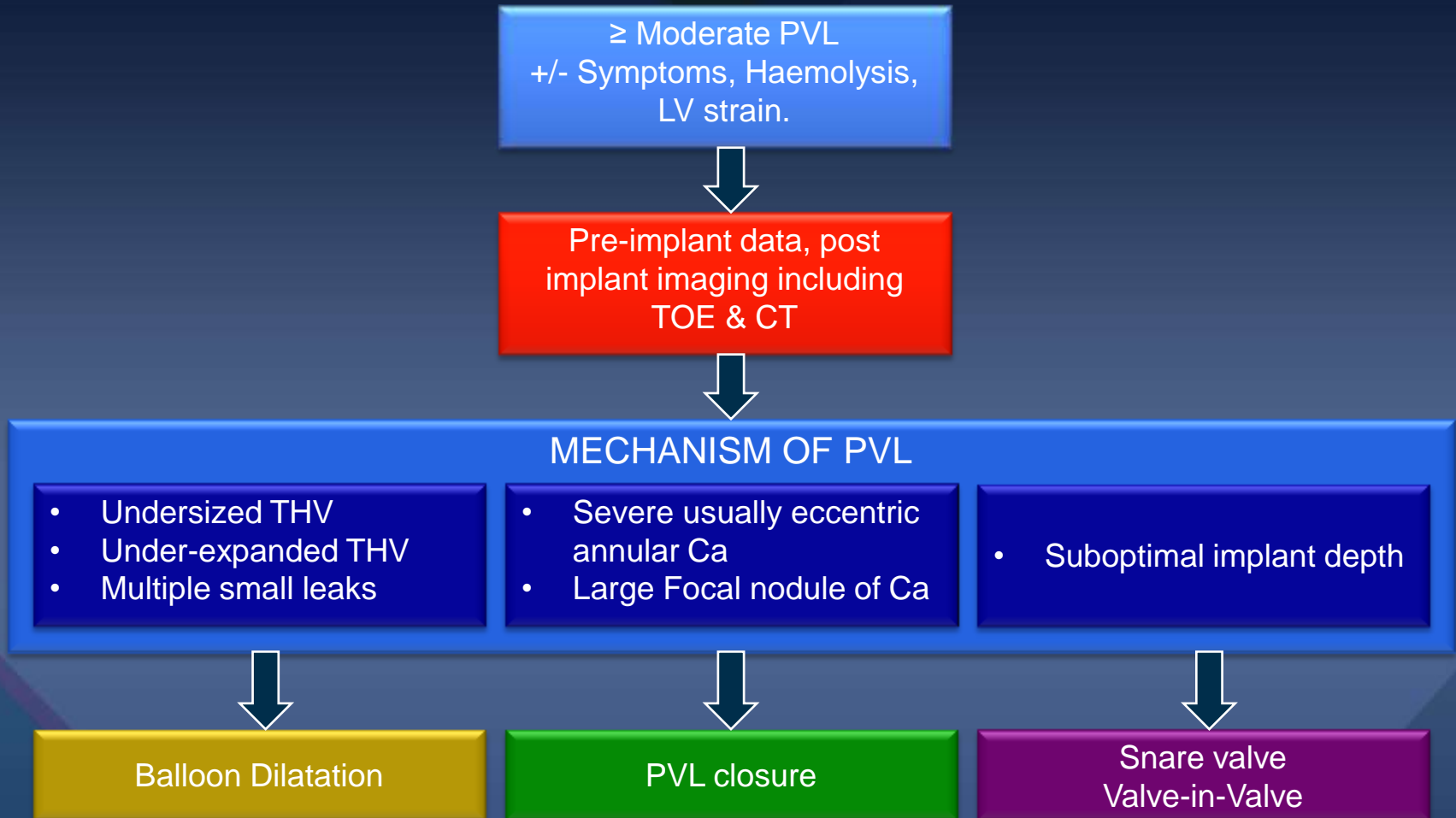
Mod-severe PVL trends



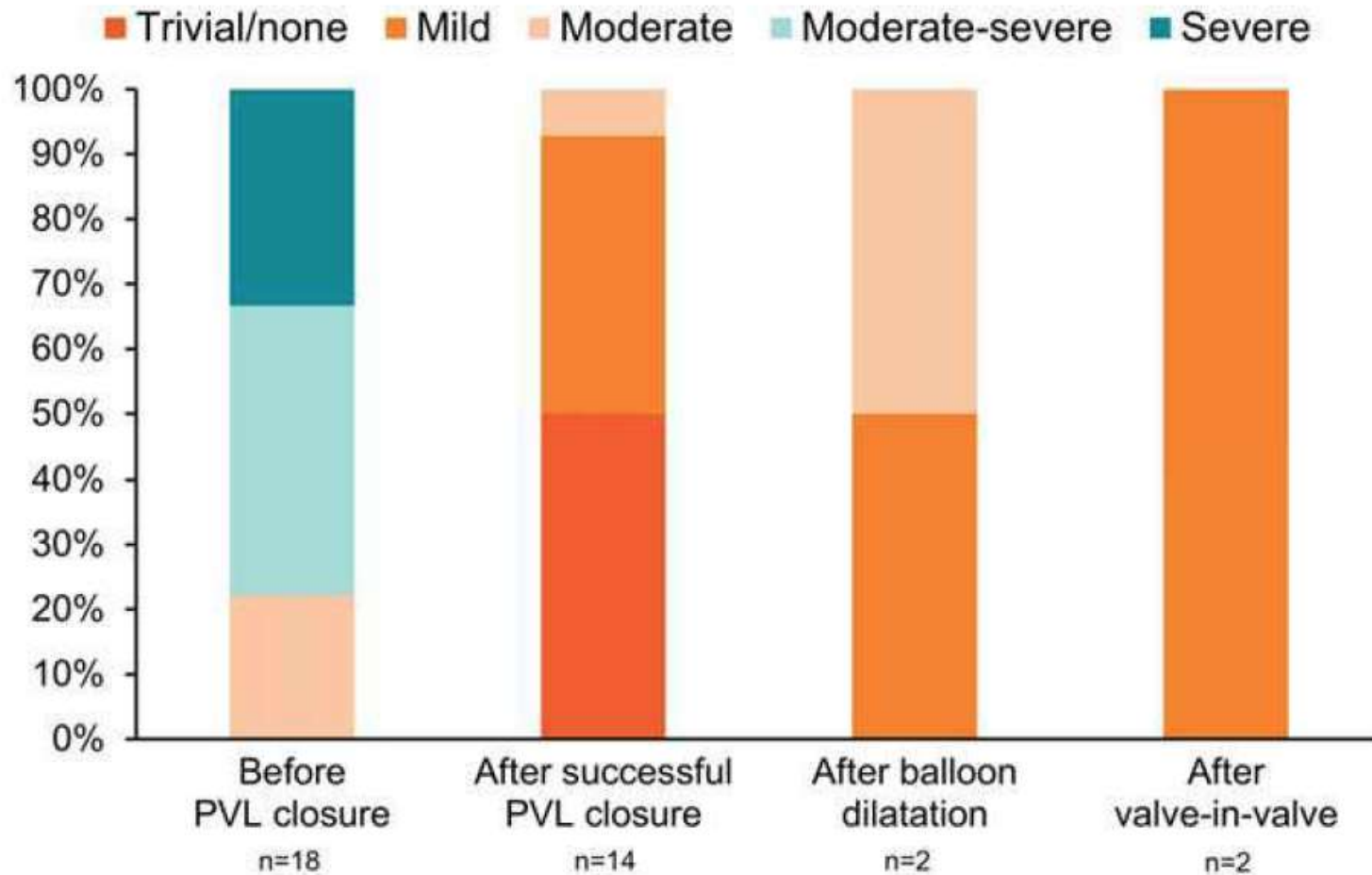
Leon et al. N Engl J Med 2016; 374:1609-1620

Herrmann et al. Circulation 2016, Volume 134, Issue 2

Post TAVR PVL Assessment



TAVR PVL Closure Efficacy



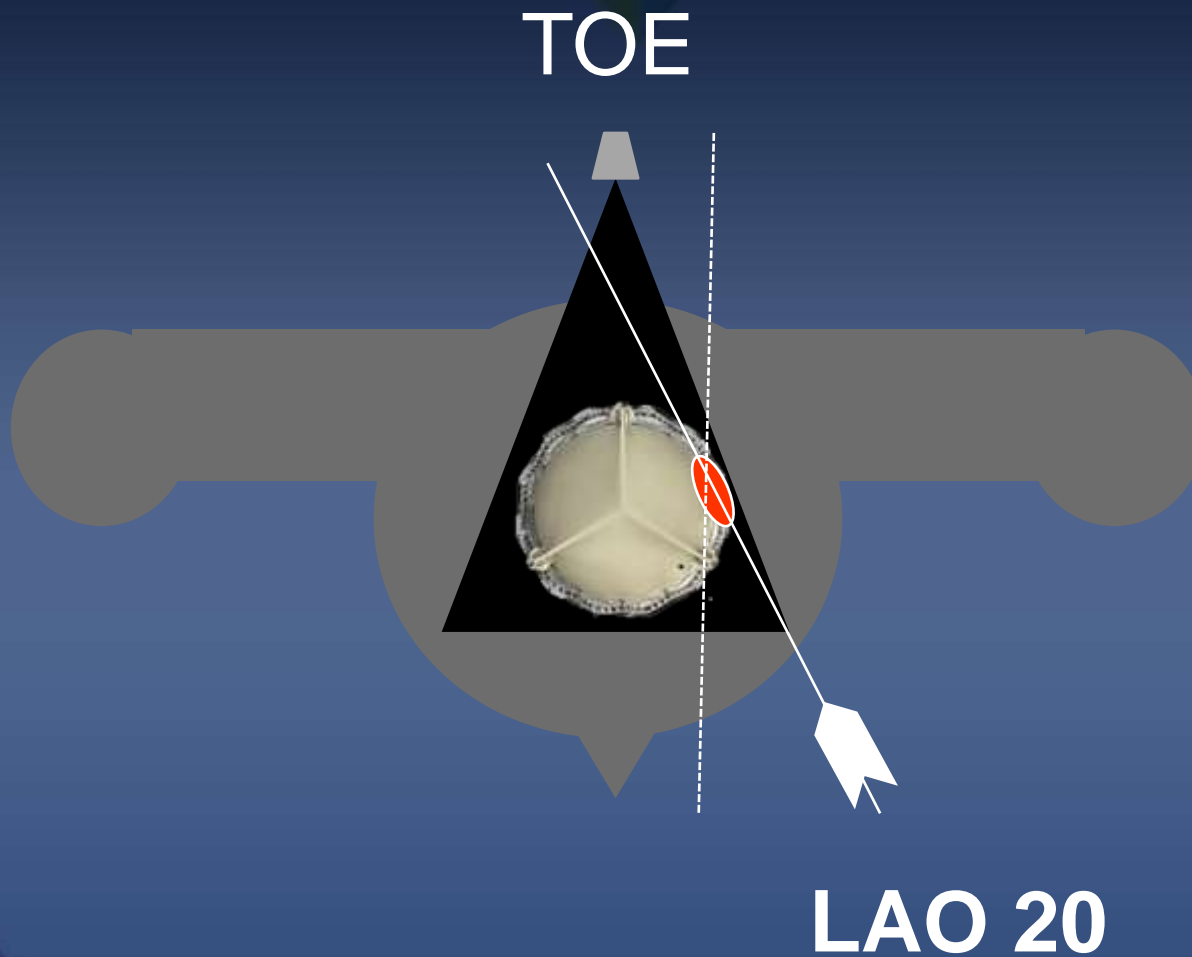
PVL closure: Access

- Usually RFA
- 6 to 8F depending on size of defect, need for multiple devices
- Radial access can used down to 4F – if utilising AVP 4 device.
- Contralateral access if using looping technique.

PVL closure: Imaging

- A combination of Fluoroscopy, TOE and CT (if staged PVL closure)
- Ideal imaging angles for PVL closure identified by TOE +/- CT
- Aortogram with pigtail or focus angio with diagnostic catheter to identify defect.

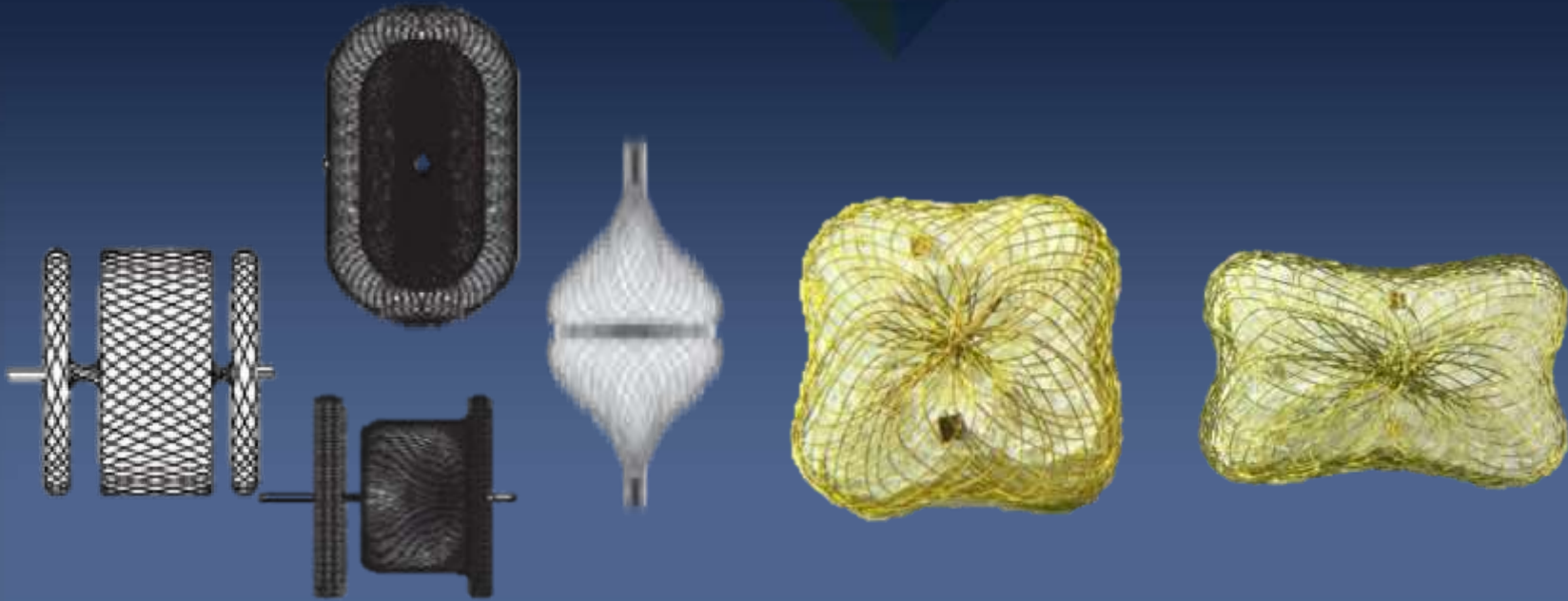
Fluoroscopic Imaging Angle



PVL closure: Device Sizing & Choice

- Sizing and shape of defect done by TOE +/-CT, Angio
- Waist of Device should be 2 – 4mm larger than defect.
- If defect is long/crescentic shaped – use 2 devices or oval shaped device rather than oversizing round device

Devices for PVL Closure



AVP II

AVP III

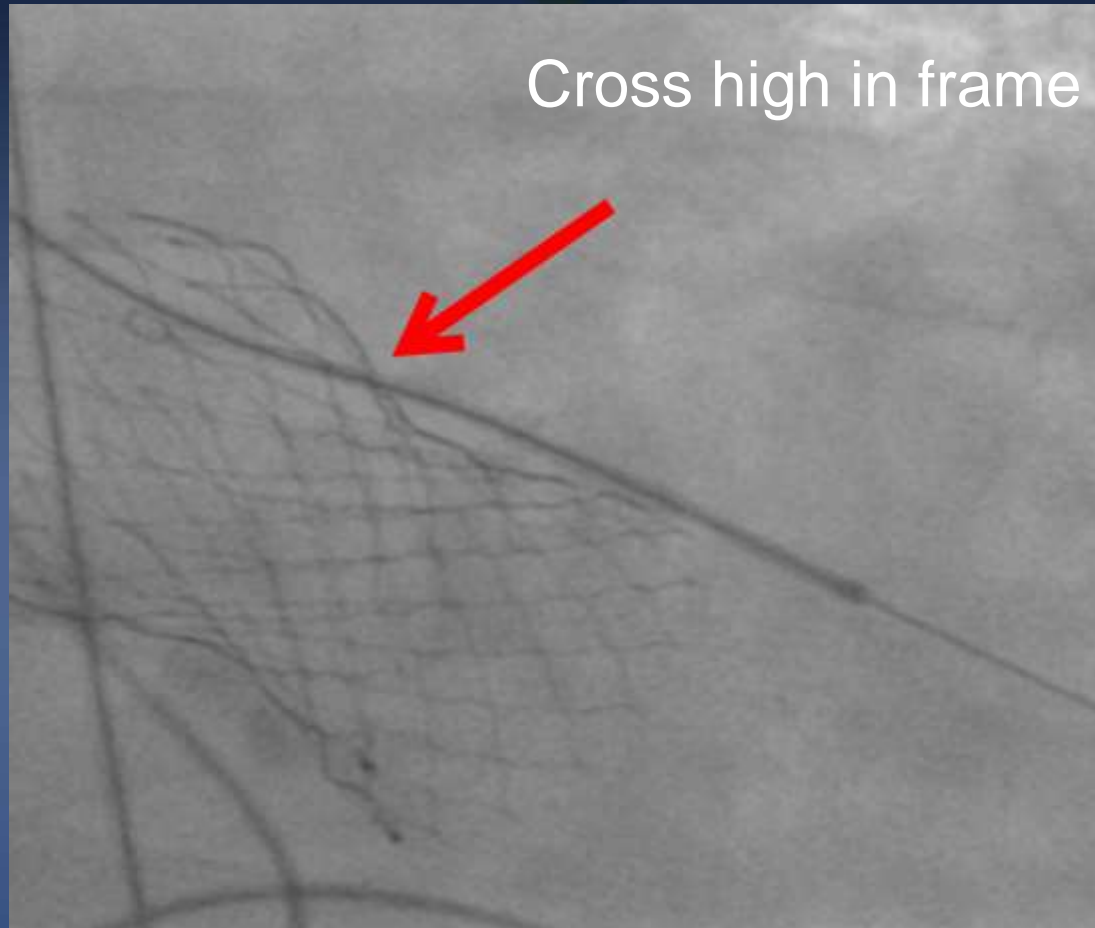
AVP IV

Occlutech PLD

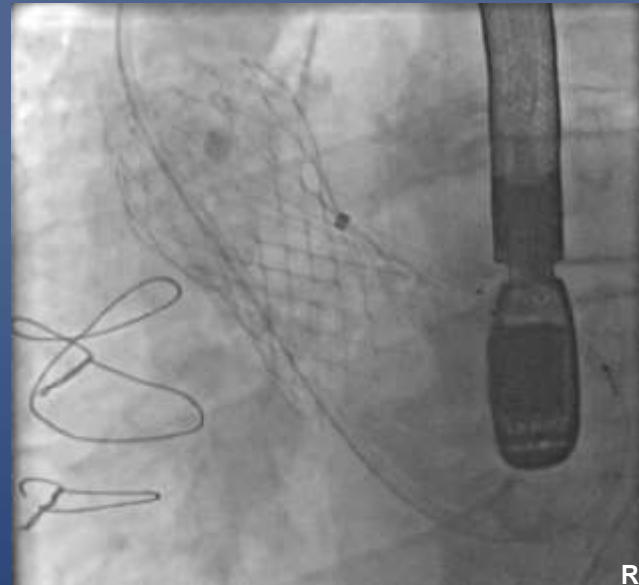
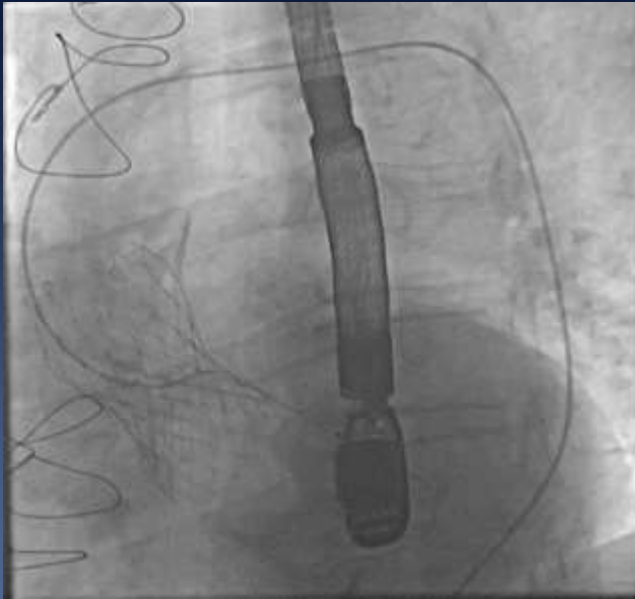
Crossing the Defect

- Hydrophilic wire + diagnostic catheter (MPA, JR4...may need to try different catheters), mother in child, hydrophilic catheters
- Exchange for stiff wire for more support to enable delivery catheter/ sheath across
- Where access is difficult – AVP IV will go through any catheter that will pass 0.038 wire
- With THV PVL be prepared for more friction.

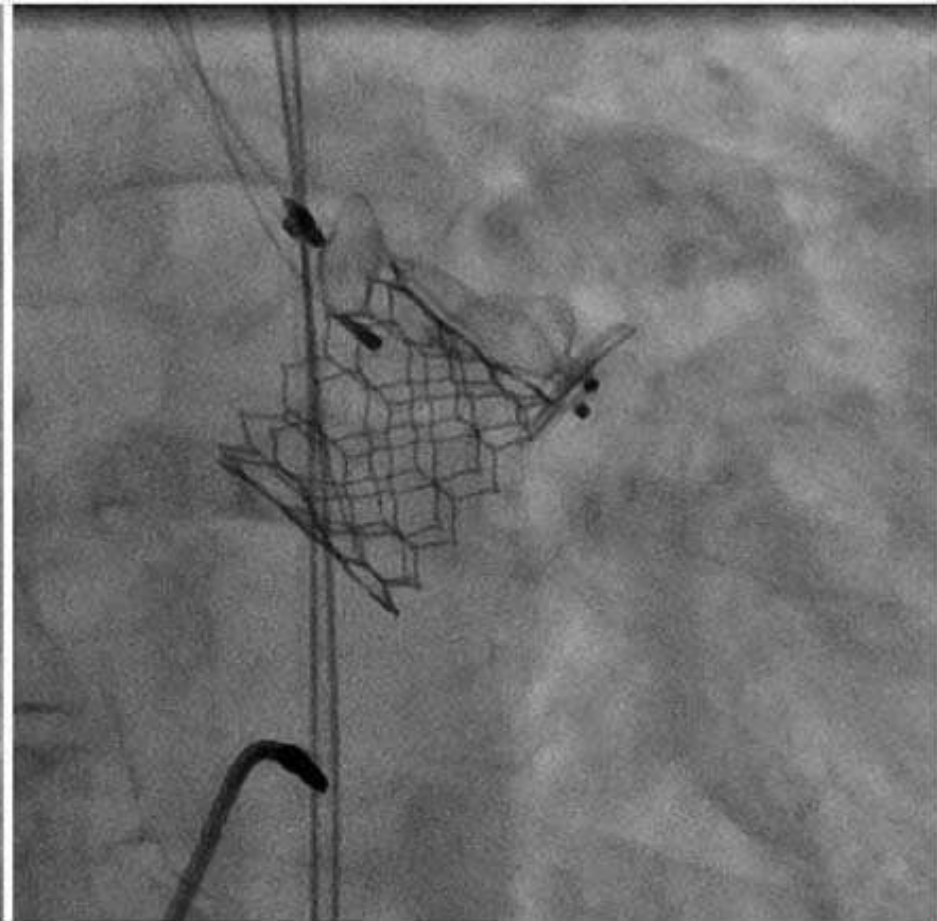
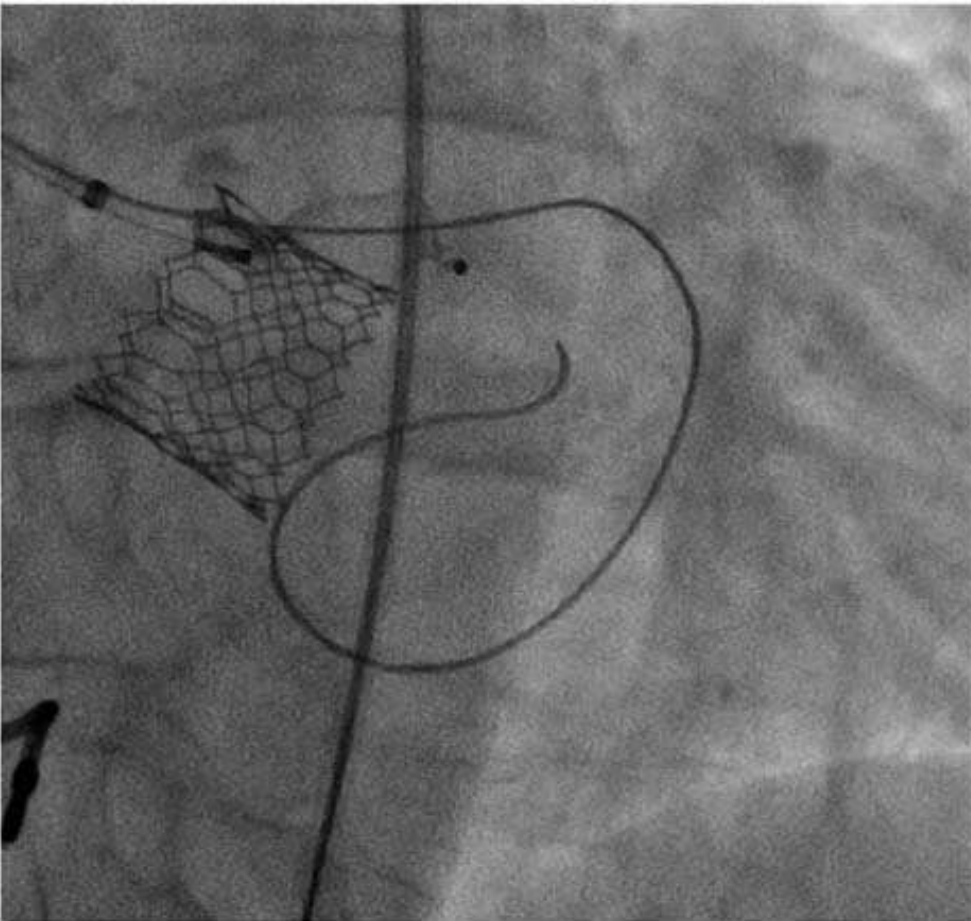
Crossing the Defect - CoreValve



Looping Technique - CoreValve



Anchor Wire for Deploying ≥ 2 Devices



Device Deployment

- Ensure no obstruction to THV, coronaries.
- Tug & Push
- Final check – Deploy!

Case

Diameter (mm) 23 26

Area (mm²) 415

Perimeter (mm) 72.3

Height 14.3

Annulus Range

TEE (mm)^a 18 - 21

CT MD (mm)^b 19 - 22

CT Area (mm²)^b 300 - 380

CT Perimeter (mm)^b 60.0 - 69.0

Distance Coronaries (mm)^a 10

↓

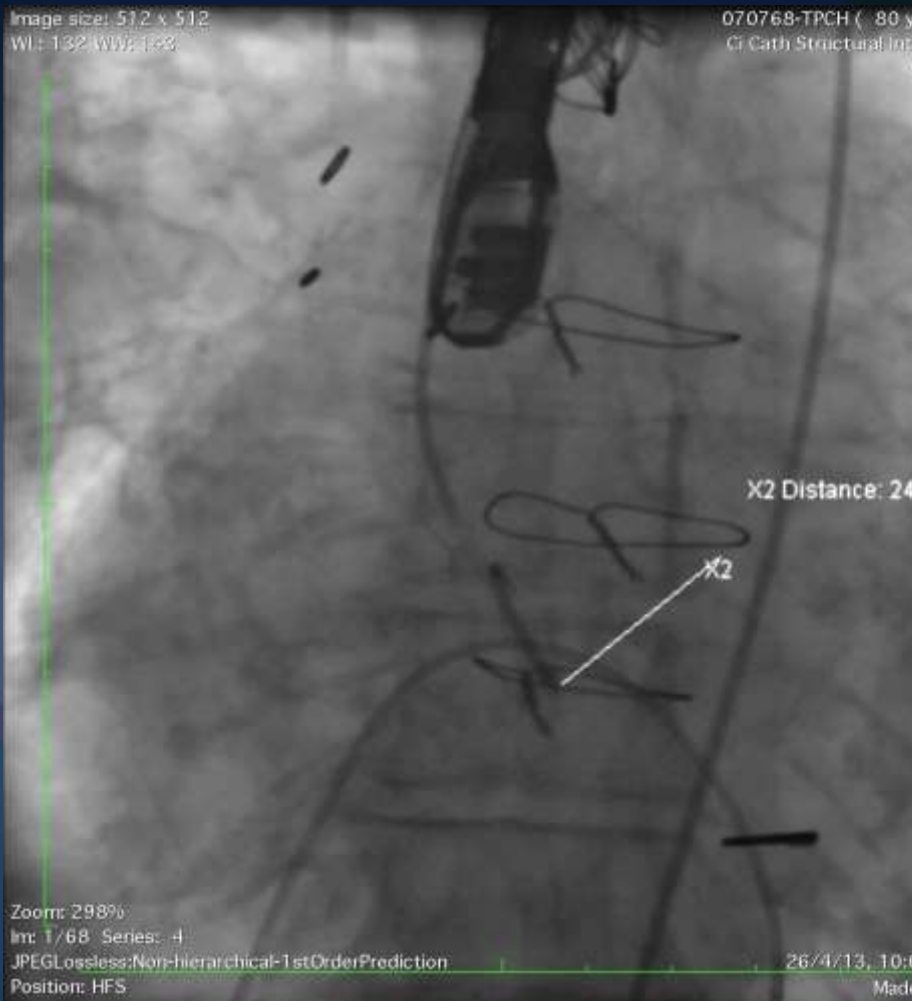
Sapien 23 mm

Annulus

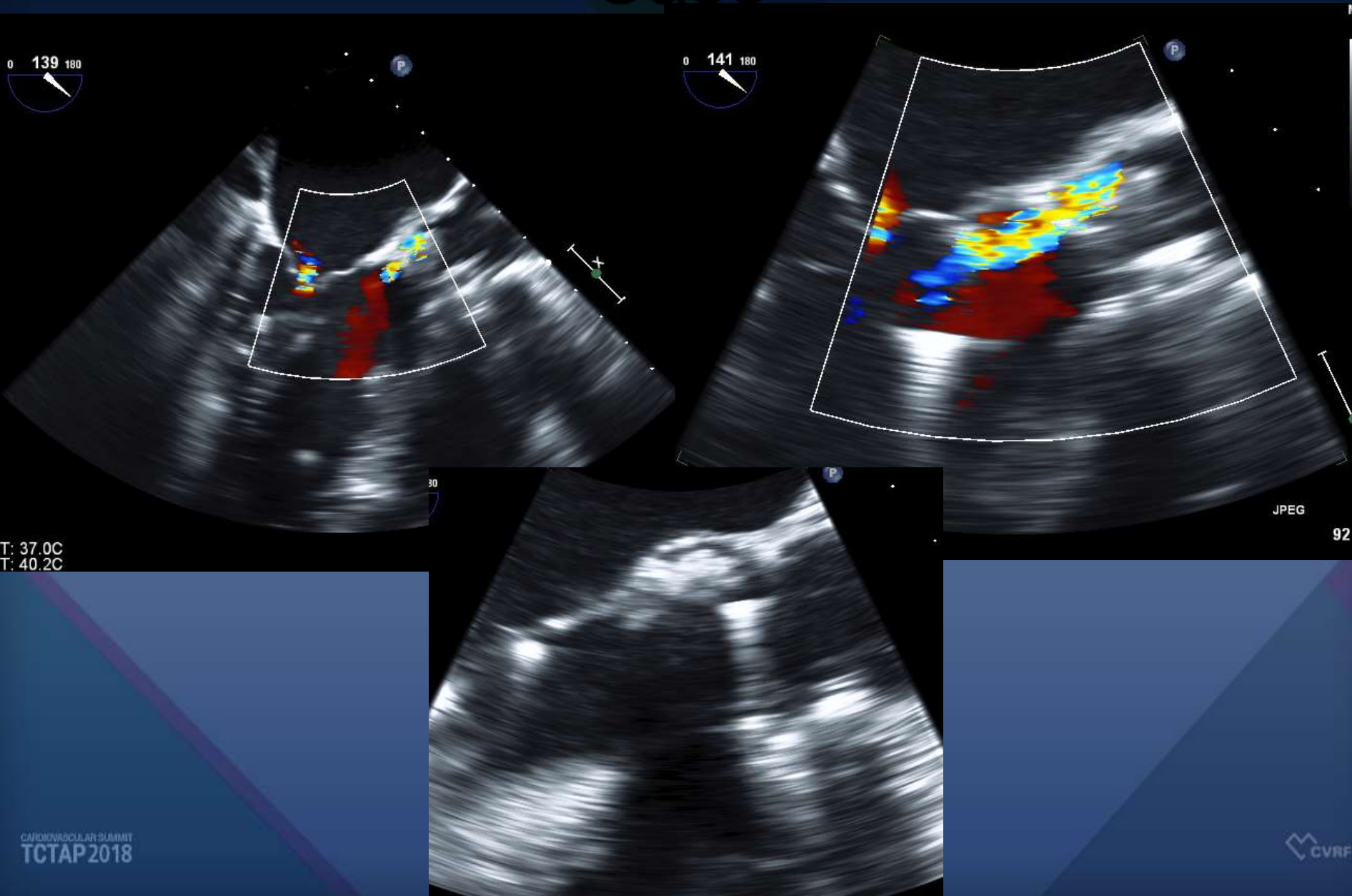
Edwa

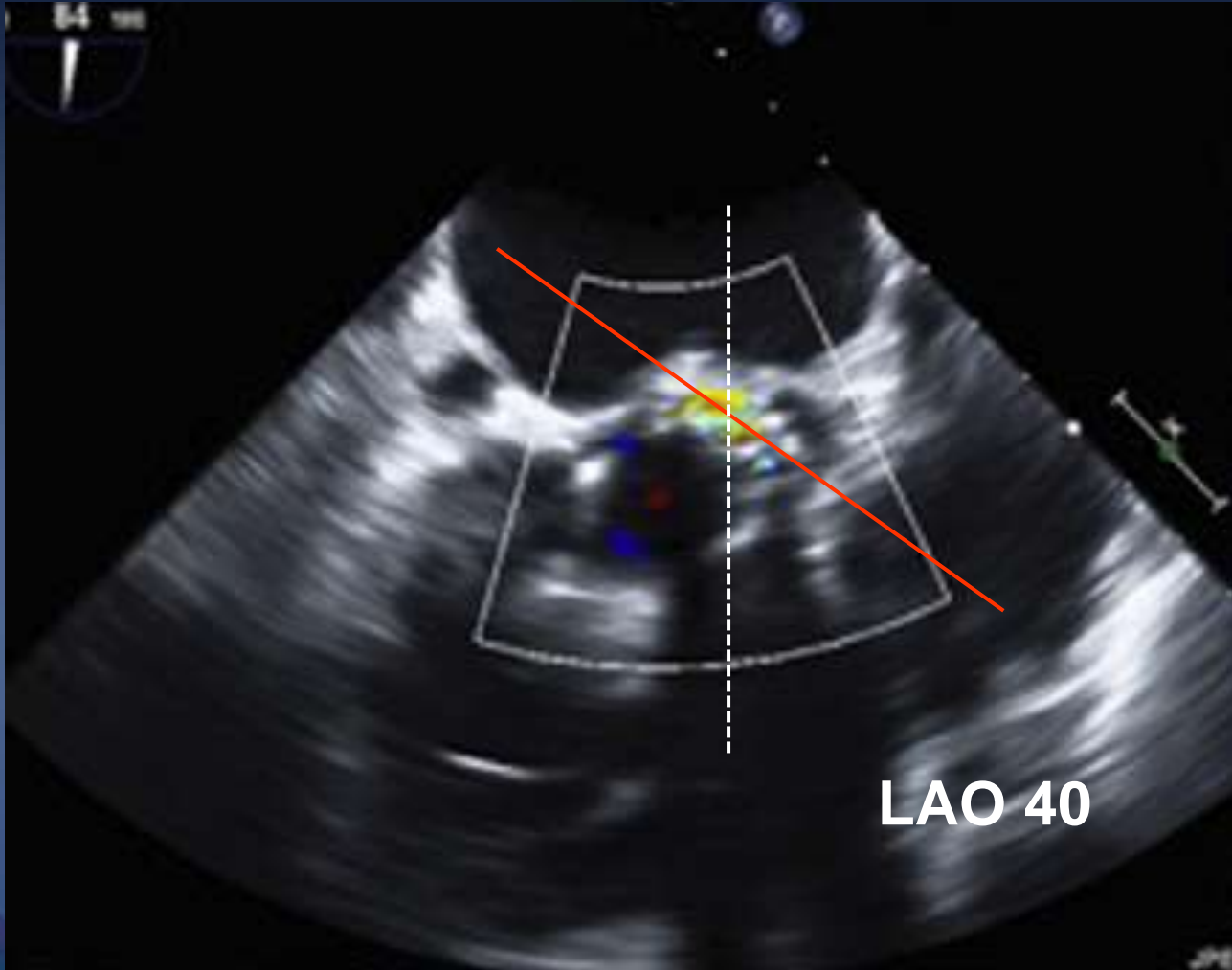
	Value	Type
	437.8 mm ²	Polygon
	75.9 mm	Polygon
	98.0	Polygon
	1256.0	Polygon
	372.7	Polygon
1	127.6	Polygon
2	27.0 mm	Diameter
3	20.6 mm	Diameter

Case



Case





Case

Image size: 512 x 512
WL: 119 WW: 146

070768-TPCH (80) Image size: 512 x 512
CI Cath Structural Int WL: 118 WW: 143

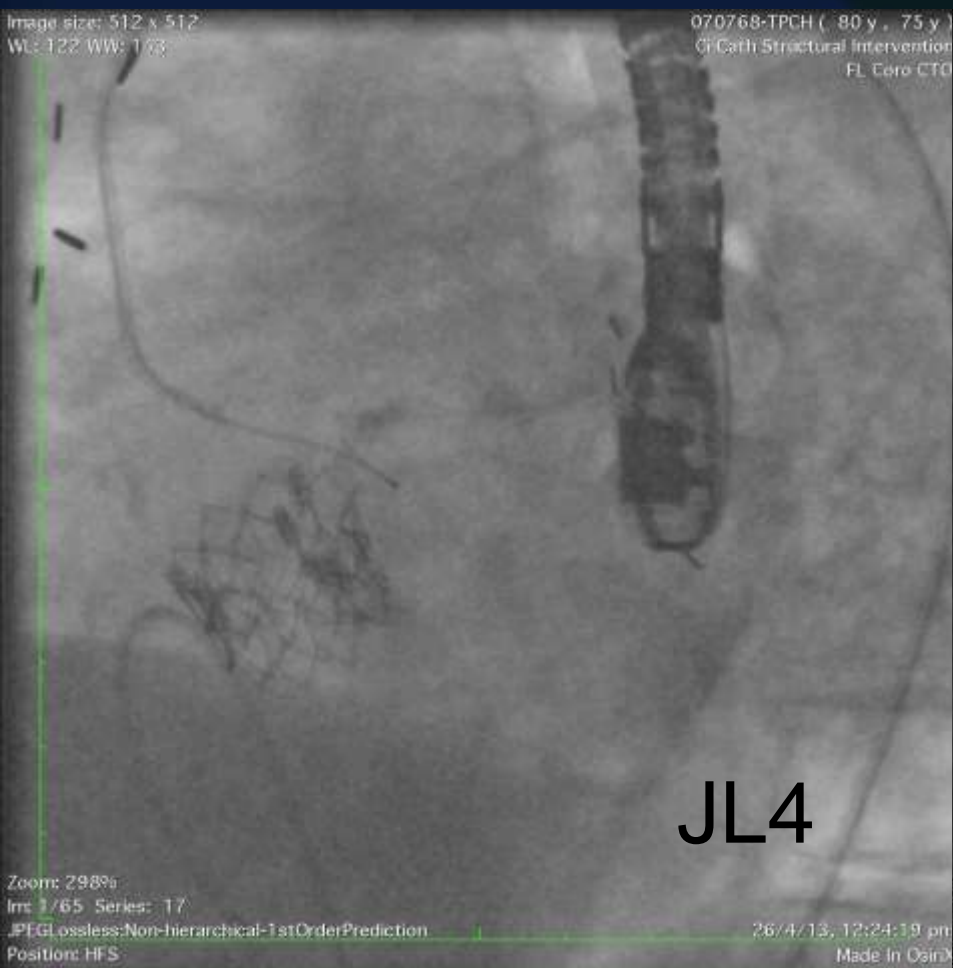
070768-TPCH (80 y, 75 y)
CI Cath Structural Intervention
Comp: CT9



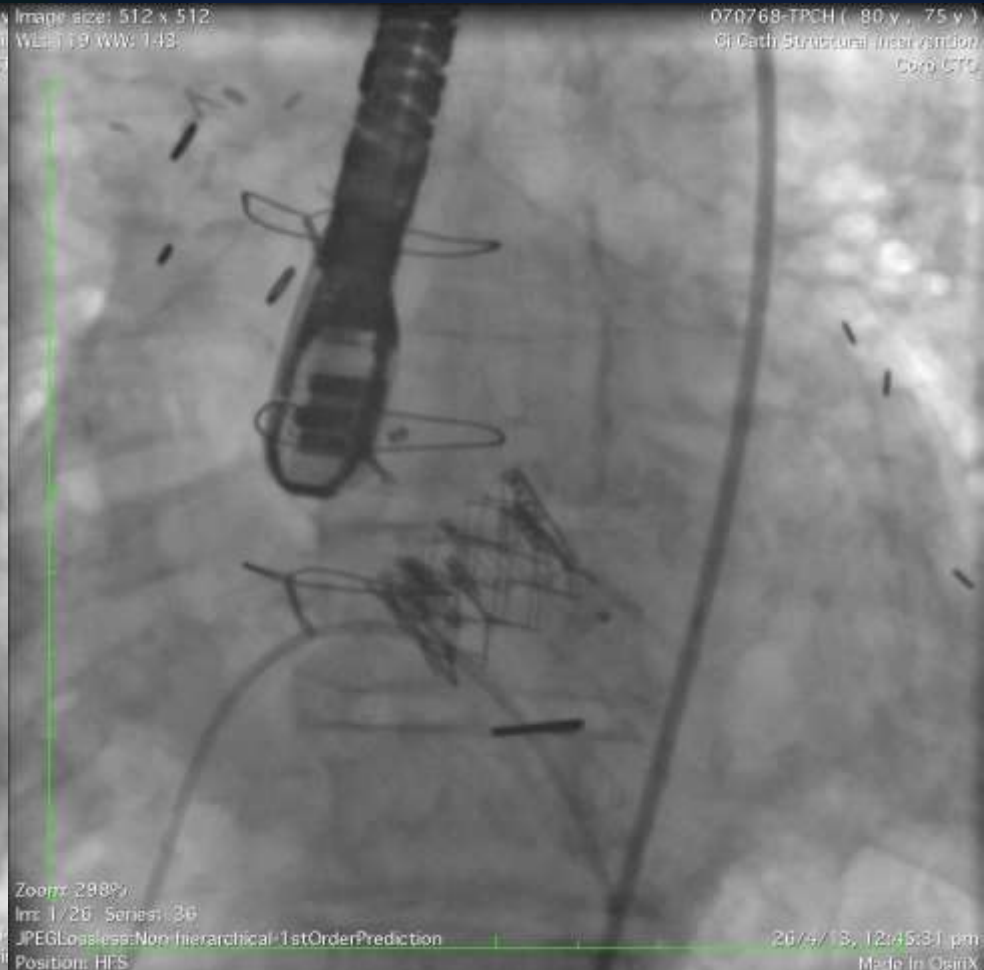
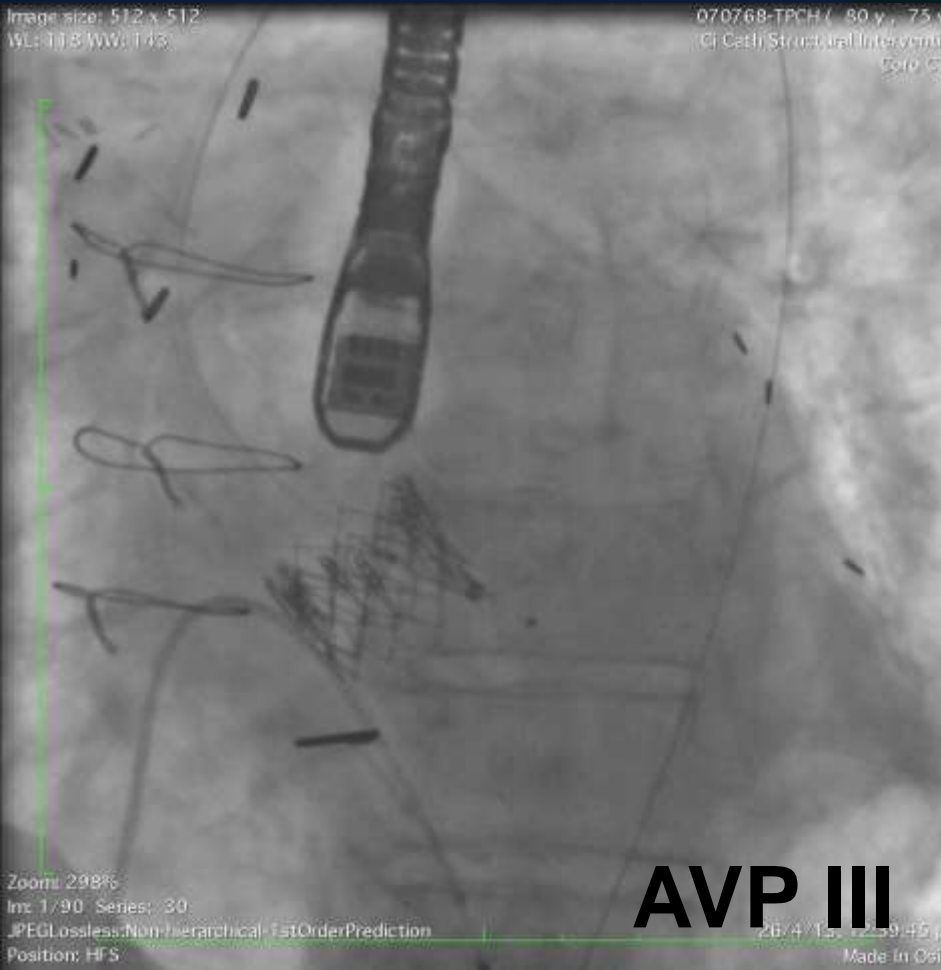
Case



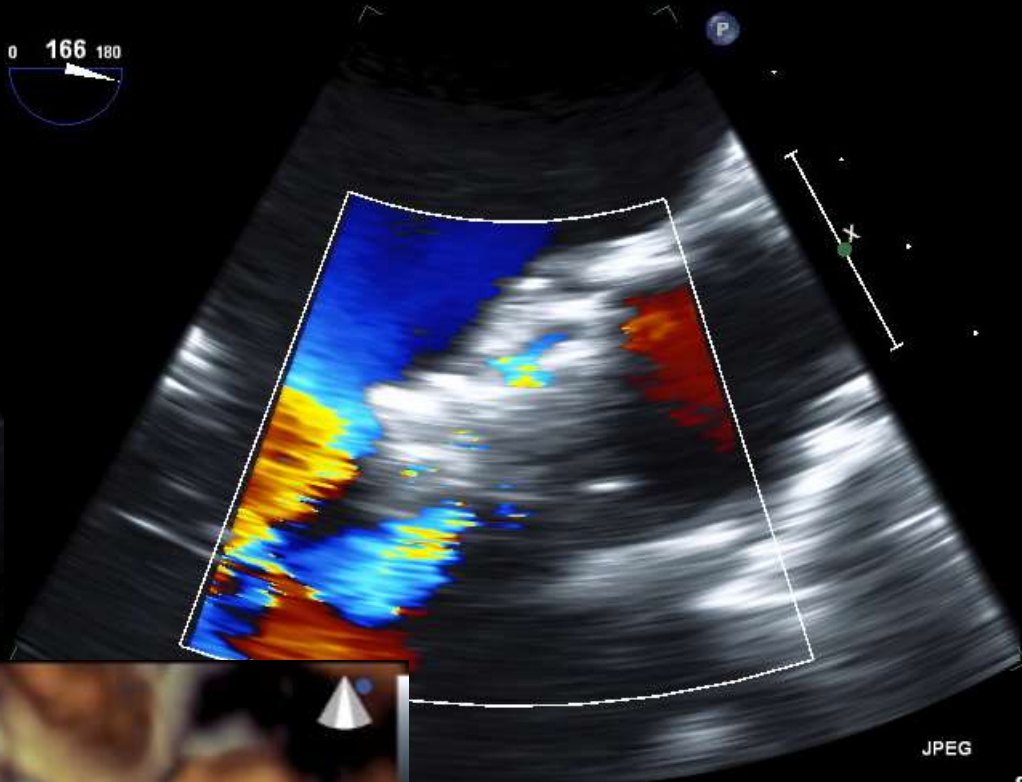
Crossing



Deploying



Deploying



Conclusions

- Incidence of PVL in TAVR is reducing
- Identifying the cause of the PVL is important to guide Rx
- PVL closure in TAVR is feasible and successful
- The procedure is similar to SHV PVL with some caveats