TAVR at the Basics:
Step-by-Step Streaming Procedure

EVOLUT R

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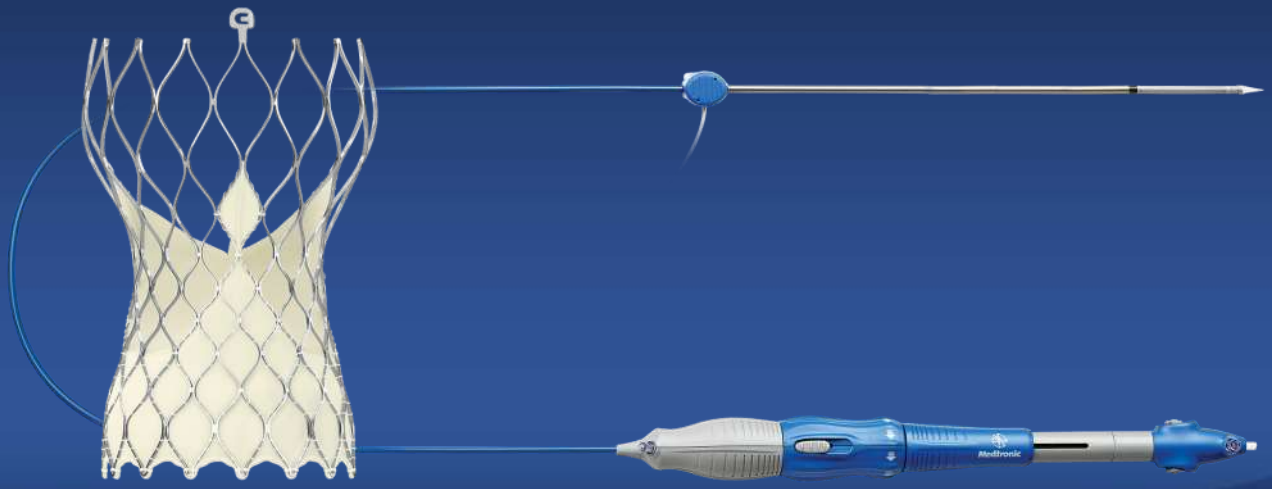
EVOLUT R

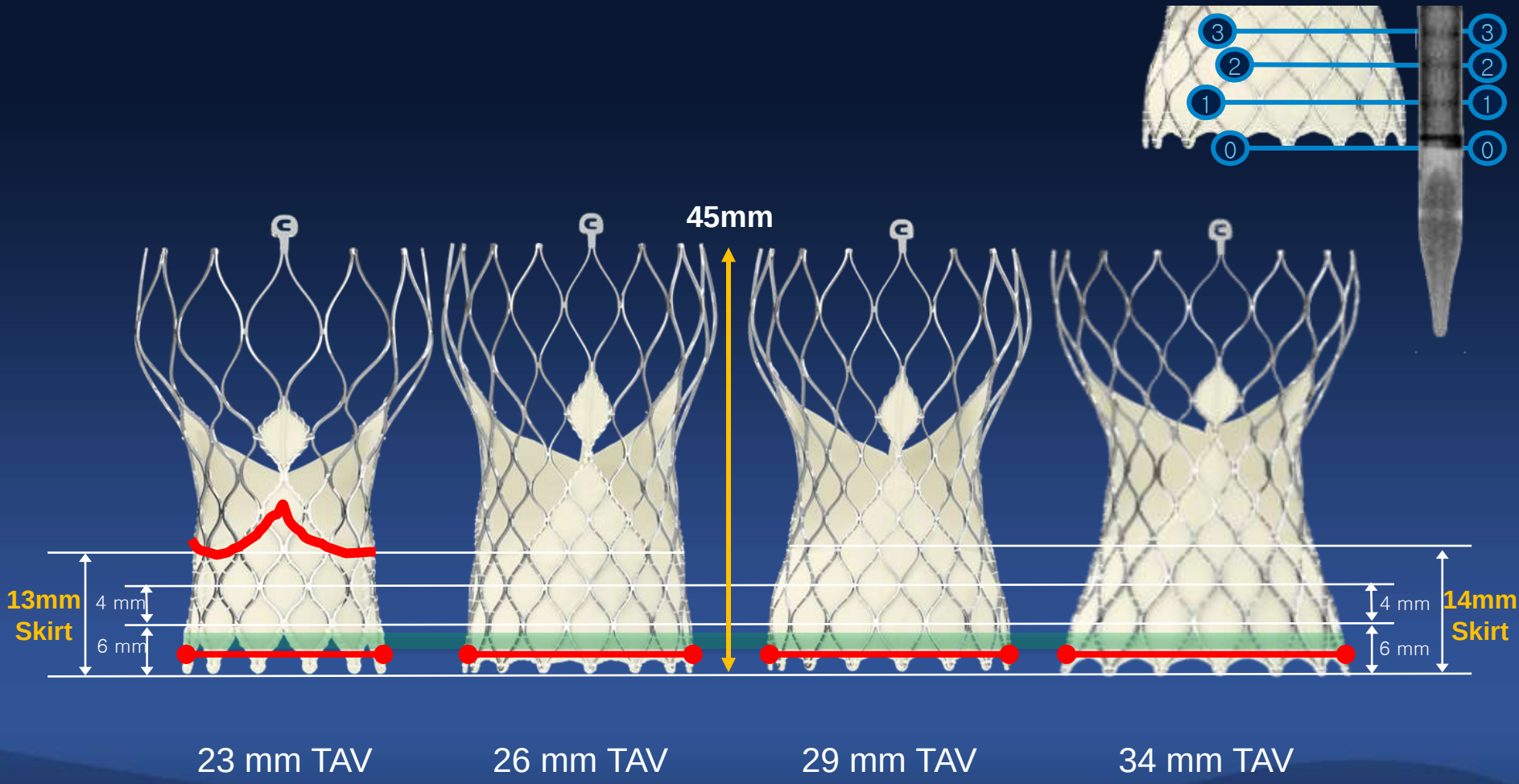
- SUPRA ANNULAR VALVE DESIGN
  - Maximizes leaflet coaptation
  - Promotes single digit gradients and large EOAs
- PORCINE PERICARDIAL TISSUE
  - Thin for low profile delivery
  - Strength and pliability for durability
- SELF-EXPANDING FRAME
  - Conforms and seals to the annulus
  - The foundation for recapturability

- 4 Transcatheter aortic valves (23, 26, 29, and 34 mm)
- 2 Delivery catheter systems (14 and 16 Fr equivalent)
- 3 Loading systems (23, 26/29, and 34 mm)



Dimension and Skirt Height

Target implant depth is **3 – 5 mm** for all valve sizes

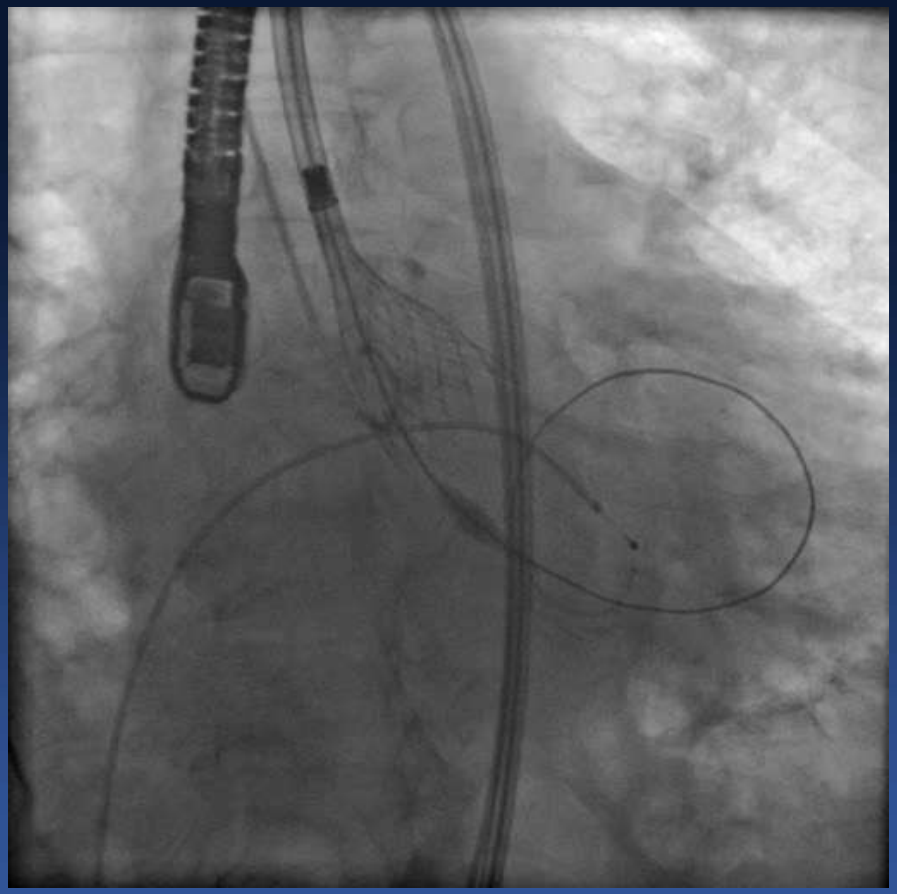


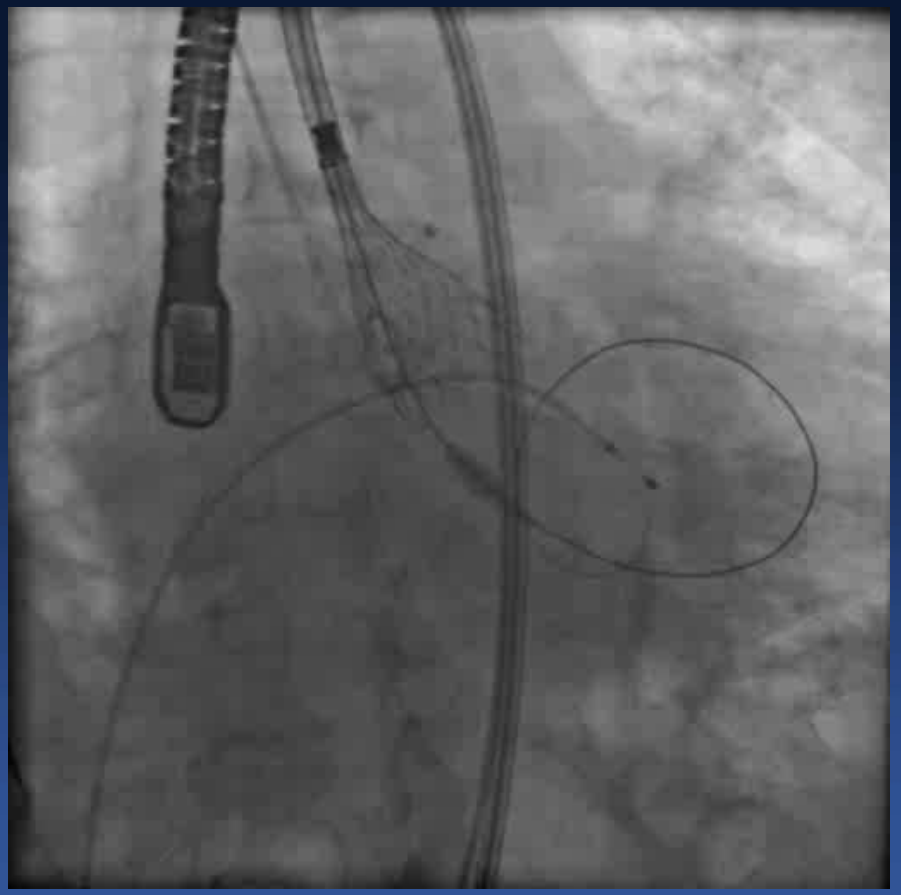
Device Selection

>10% Perimeter Oversize

Valve Size Selection	CoreValve® Evolut® R Bioprosthesis		
			
Size	23 mm	26 mm	29 mm
Annulus Diameter	18-20 mm	20-23 mm	23-26 mm
Annulus Perimeter†	56.5-62.8 mm	62.8-72.3 mm	72.3-81.7 mm
Sinus of Valsalva Diameter (Mean)	≥ 25 mm	≥ 27 mm	≥ 29 mm
Sinus of Valsalva Height (Mean)	≥ 15 mm	≥ 15 mm	≥ 15 mm

Recapture





Femoral Access

InLine Sheath

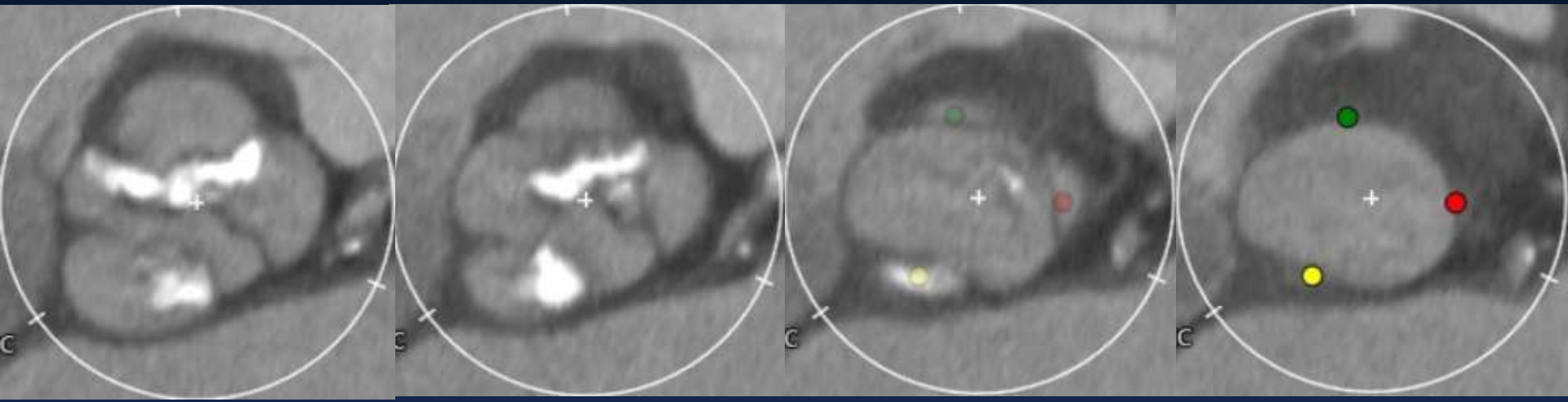
14/16Fr Equivalent InLine Sheath		18/20 Fr Cook Sheath	
18Fr (OD)	20Fr (OD)	22Fr (OD)	23Fr (OD)
≥ 5.0 mm	≥ 5.5 mm	≥ 6.0 mm	≥ 6.5 mm

Treatable Access Vessel Diameter

Case 1: Bicuspid AV and Small Access

- 67/M, 162.7 cm, 52.3 kg, BMI 19.76, BSA 1.54
- Chief complaints
  - Chest pain (CCS III)
- Medical history
  - DM on insulin, HTN
  - ESRD on HD via AVF (2016.9.12-)
  - ASO s/p PTA (2010.12)
  - 1VD s/p PCI at RCA (2008.1) : Patent (2017.2)
  - s/p Lt.MCA infarction (2015.2), s/p traumatic EDH (2016.11)
  - Hypothyroidism / s/p total gastrectomy (15YA)
- ECG : NSR
- STS score = 9.977 %, Euroscore I = 45.94 %, Euroscore II = 4.60 %

CT findings – Aortic annulus view



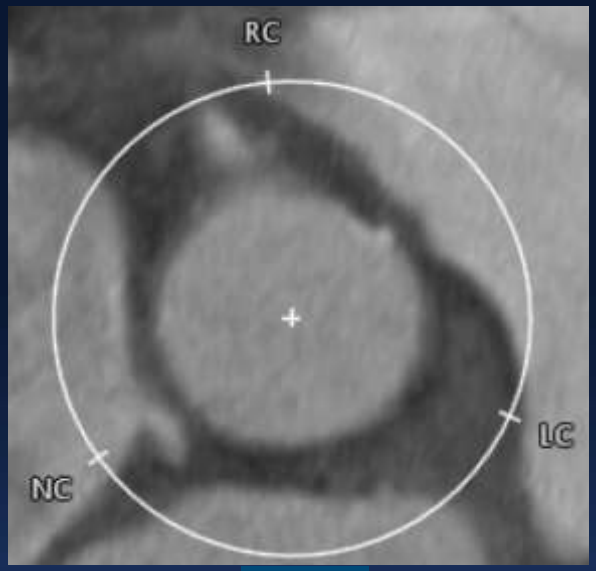
Bicuspid AS with L-R fusion

Annulus plane

Aortic Annulus parameters	
Annulus short diameter	20.2 mm
Annulus long diameter	28.0 mm
Annululs mean diameter	24.1 mm
Annulus area	452 mm^2
Annulus area-driven diameter	24.0 mm
Annulus perimeter	77.6 mm
Annulus perimeter-driven diameter	24.7 mm

CT findings – Aortic Valve Complex

Sinus of Valsalva

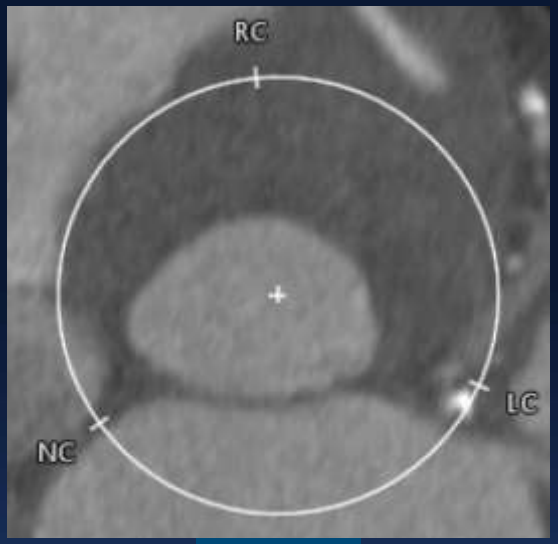


STJ

Sinus of Valsalva		STJ	
Area	838 mm^2	Area	565 mm^2
Sinus / Annulus Area Ratio	1.85	STJ/ Annulus Area Ratio	1.25
NCC diameter	34.9 mm	Mean diameter	26.9 mm
LCC diameter	31.7 mm		
RCC diameter	29.7 mm		

Mean Sinus / Annulus Area Ratio 1.83 ± 0.27 **Mean STJ / Annulus Area Ratio** 1.49 ± 0.29

CT findings – Aortic Valve Complex

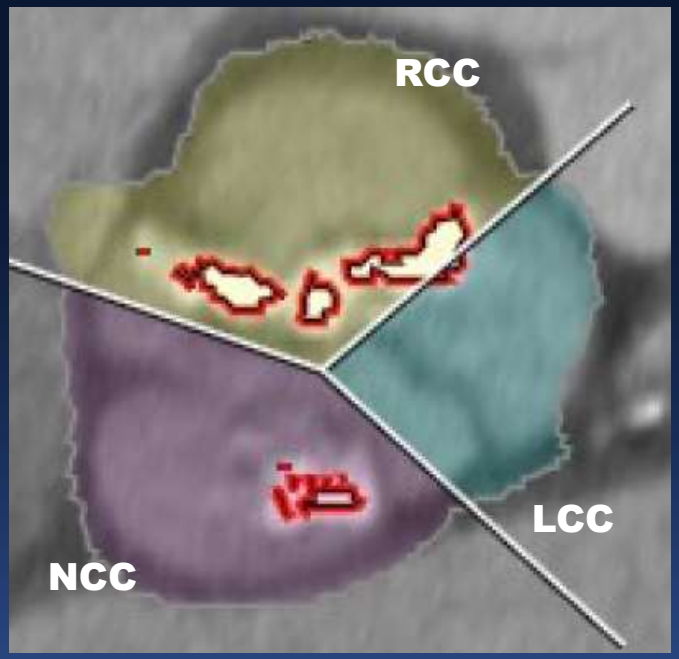


LVOT

LVOT	
Area	446 mm^2
LVOT / Annulus Area Ratio	0.99
Short diameter	20.0 mm
Long diameter	28.3 mm

Mean LVOT / Annulus Area Ratio **0.95 ± 0.12**

CT findings – Aortic Valve Complex



Calcium volume	
NCC	62 mm^3
RCC	267 mm^3
LCC	15 mm^3
Total	343 mm^3

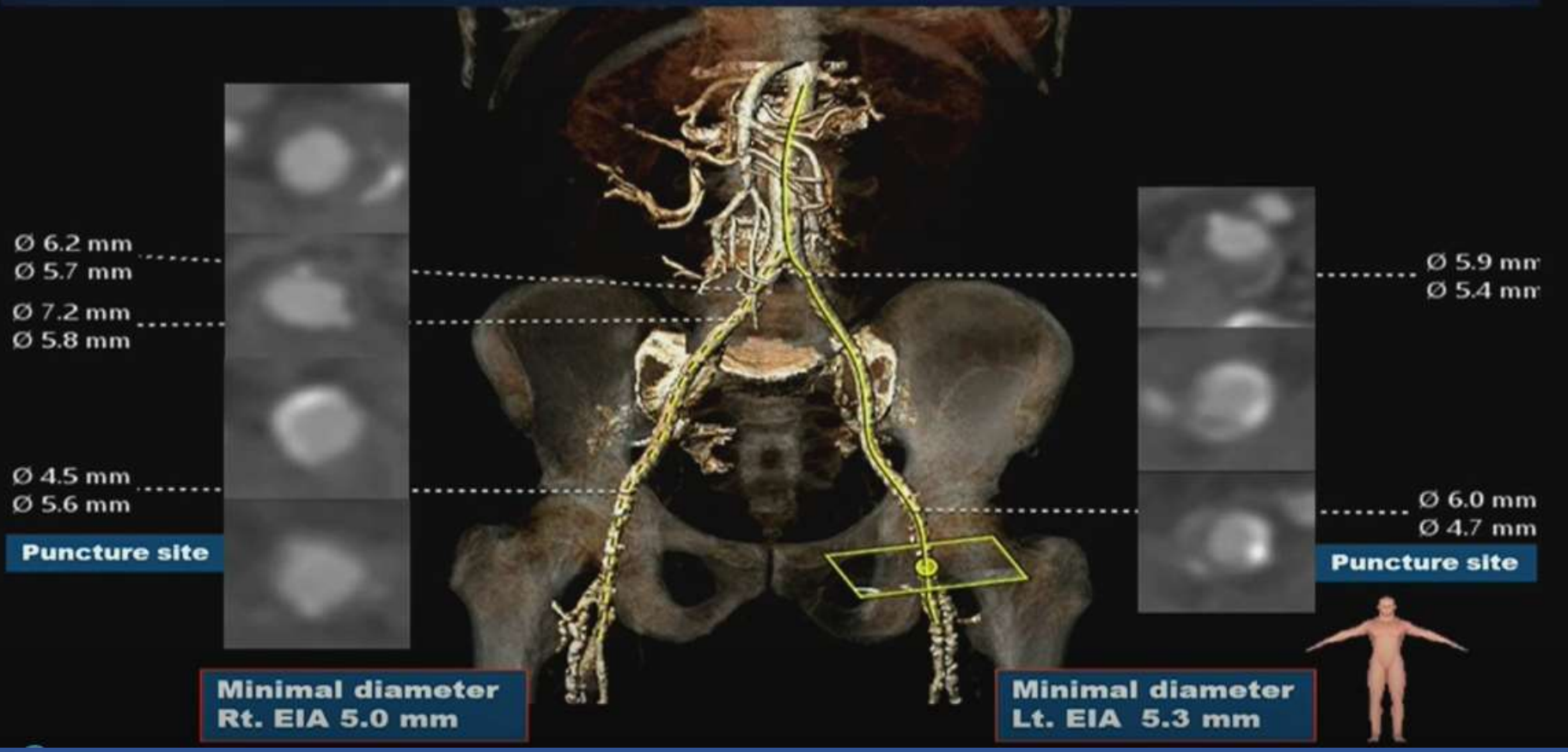
CT findings – Coronary Height

Coronary Height	
LCA	11.4 mm
RCA	18.1 mm

Sizing for Evolut R

Size	Area_oversize (%)	Perimeter_oversize (%)
23	91.9	93.1
24	100.0	97.1
25	108.5	101.2
26	117.4	105.2
27	126.6	109.3
28	136.2	113.3
29	146.1	117.3

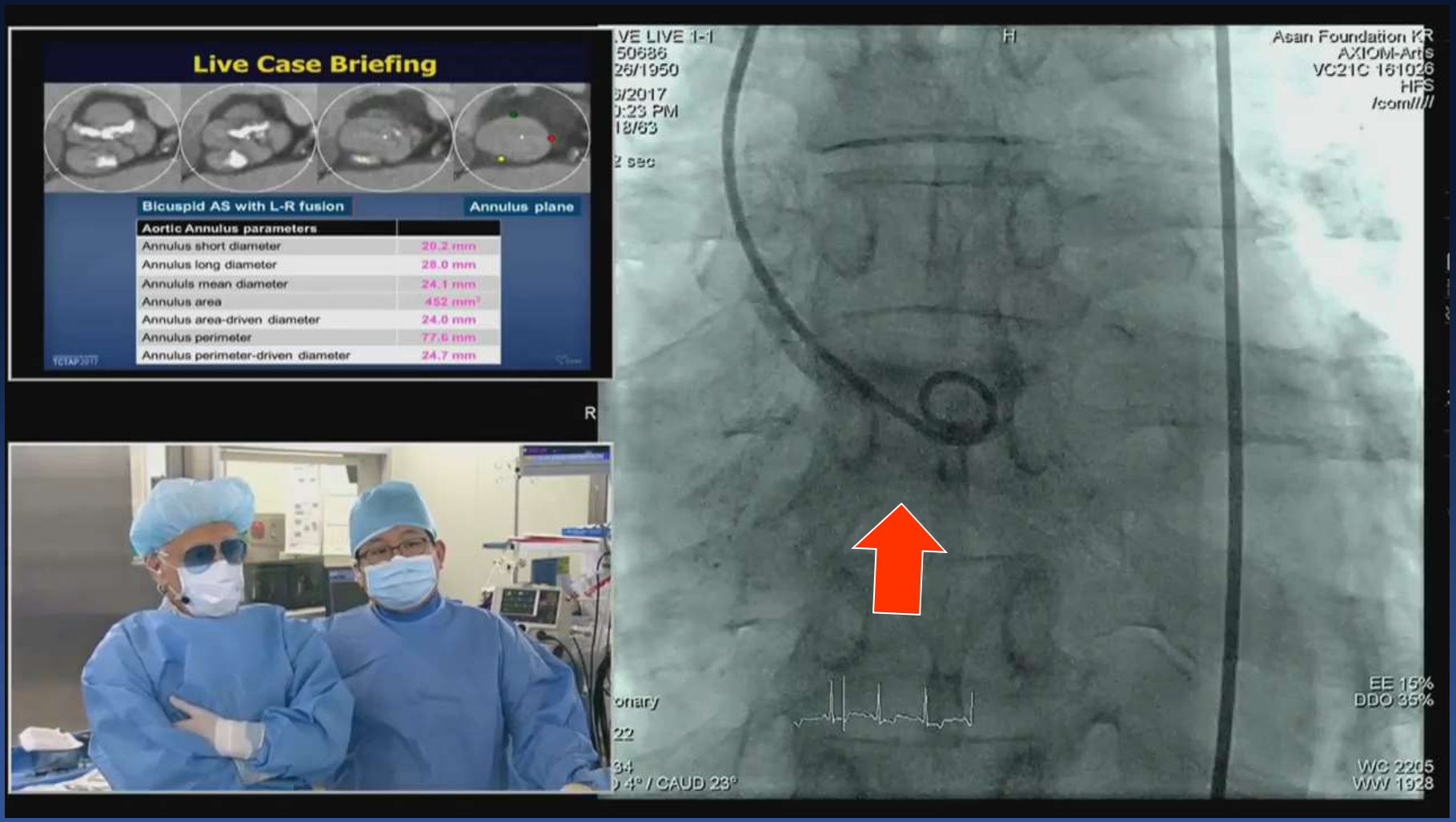
Live Case Briefing
CT findings – Ileofemoral Angio



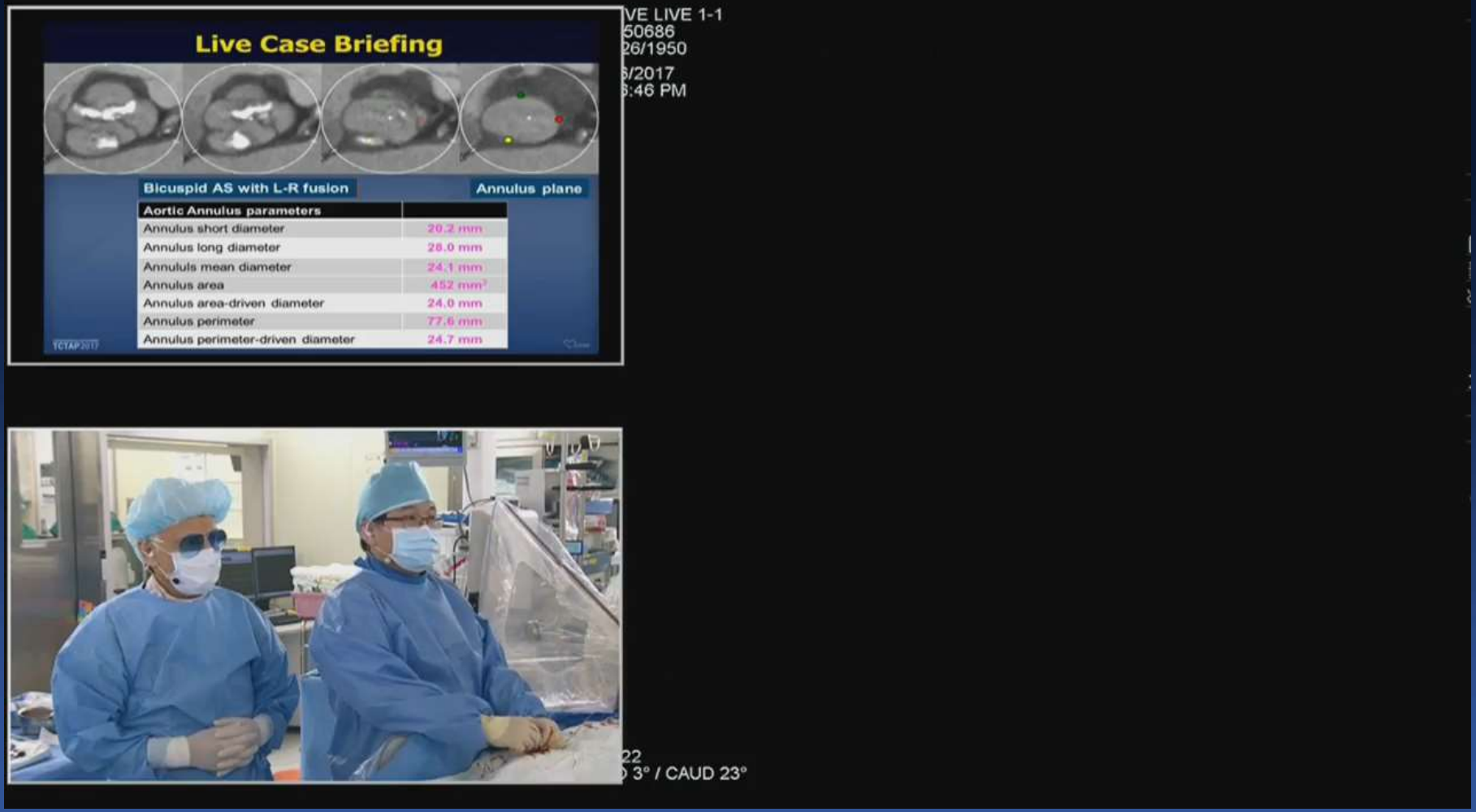
Procedural Plan

1) General Anesthesia
2) Rt. Side 14F Sheath for BAV
3) Balloon Sizing With 18mm Balloon
4) Valve Delivery Using InLine Sheath

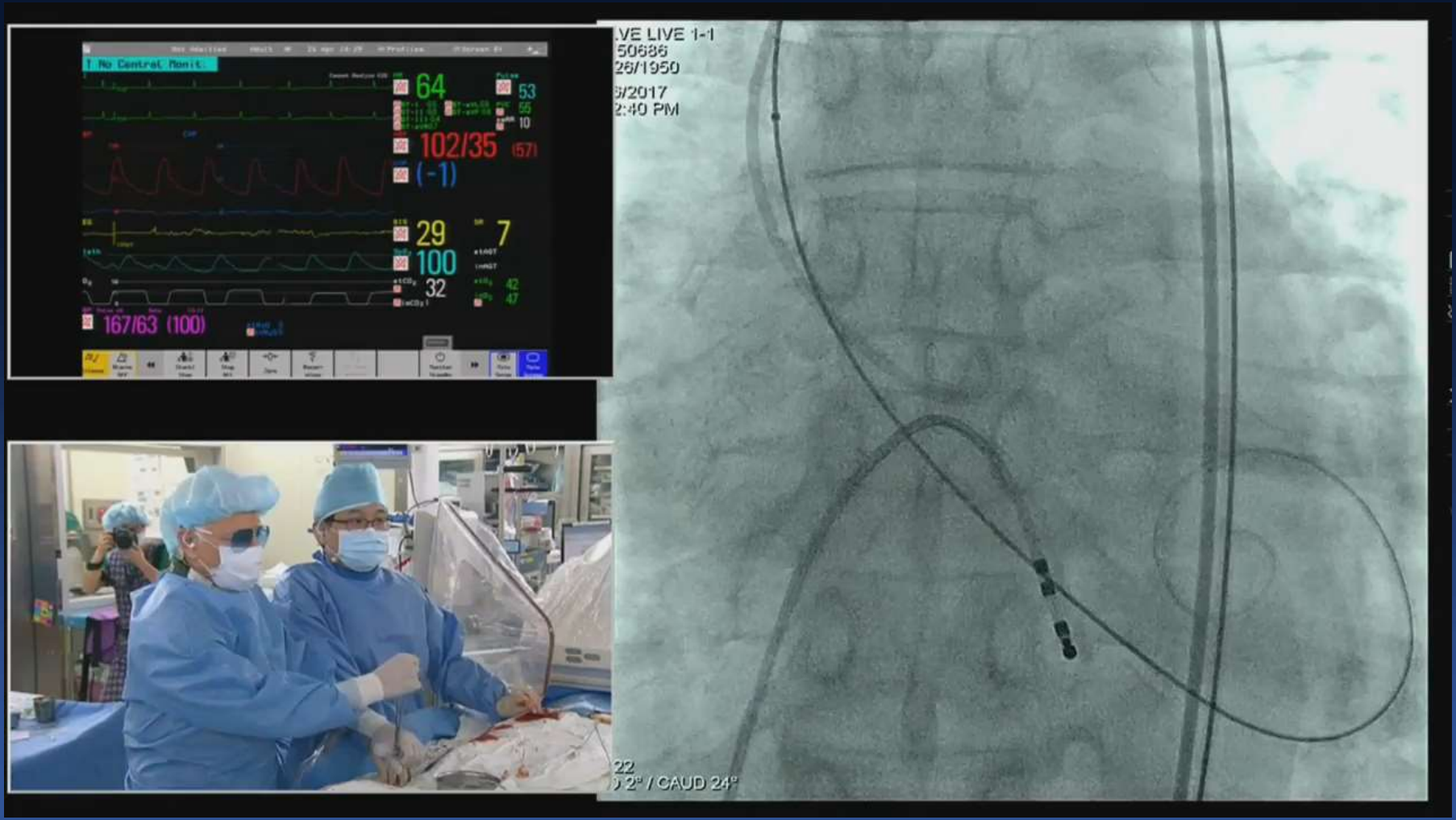
Place Reference Pigtail Catheter In NCC



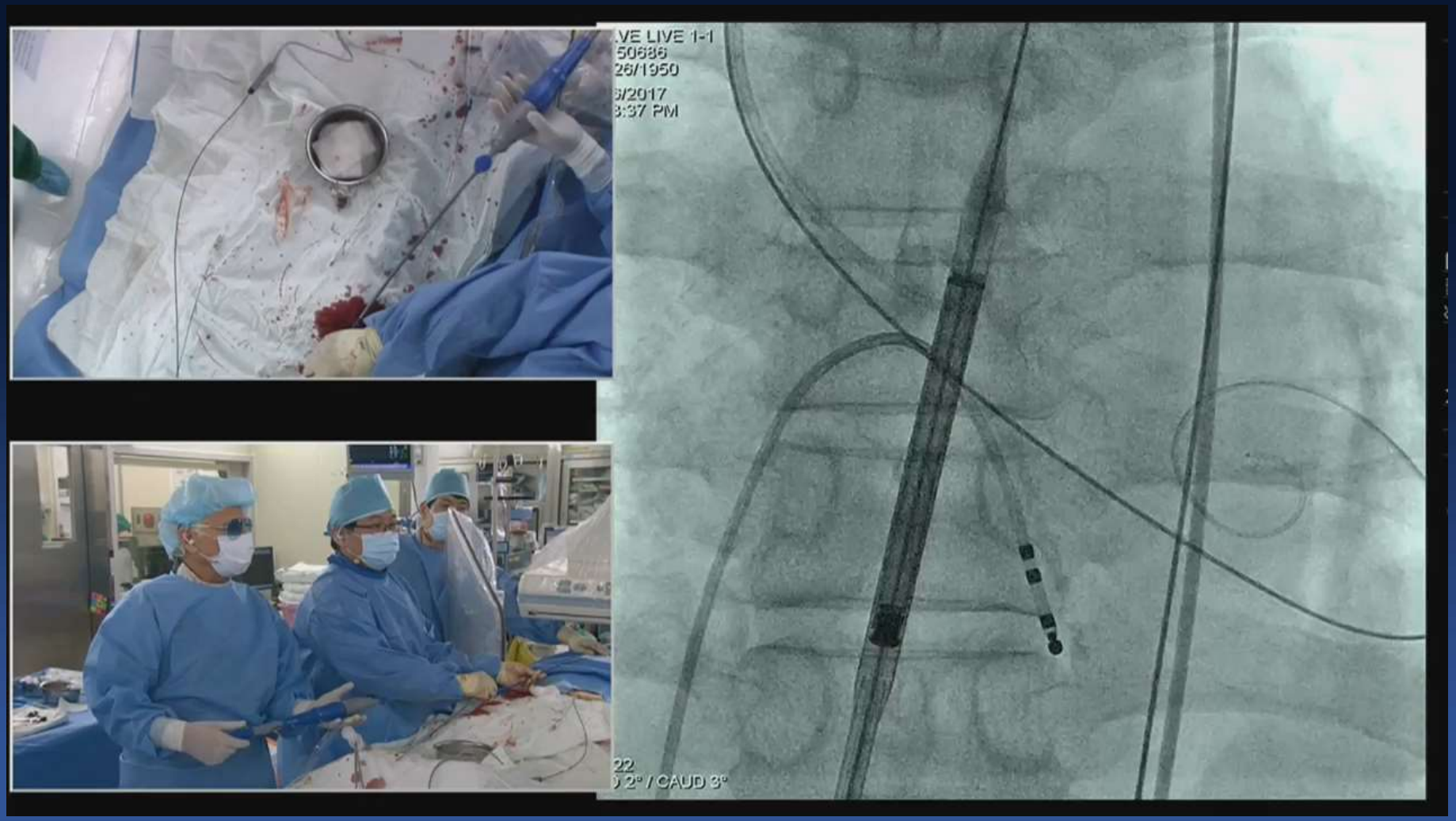
Crossing the Aortic Valve



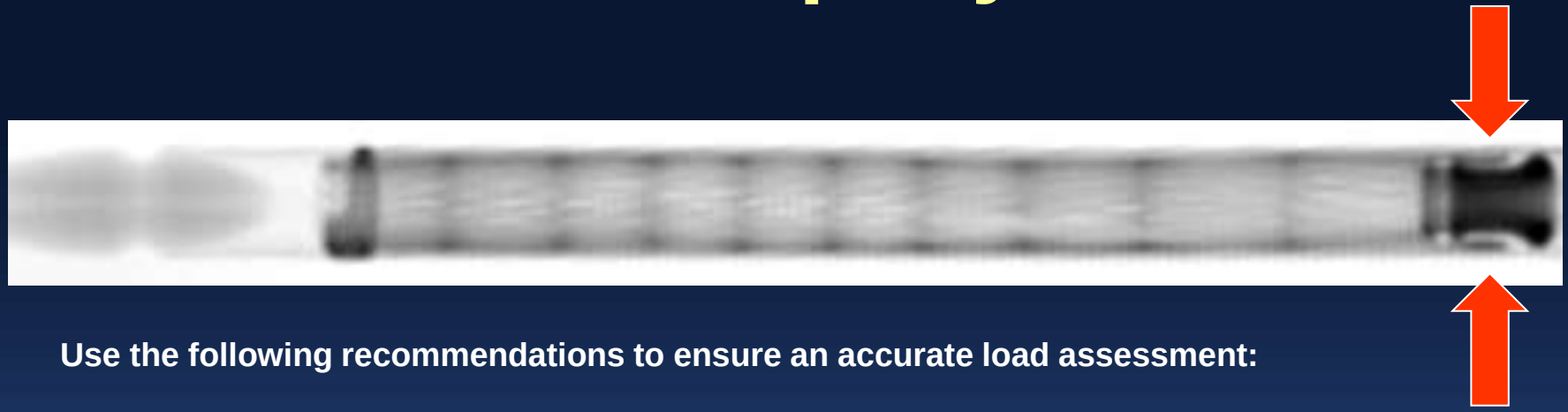
Balloon Aortic Valvuloplasty



Fluoro Load Inspection



Fluoro Load Inspection: **Paddles Properly Seated**



Use the following recommendations to ensure an accurate load assessment:

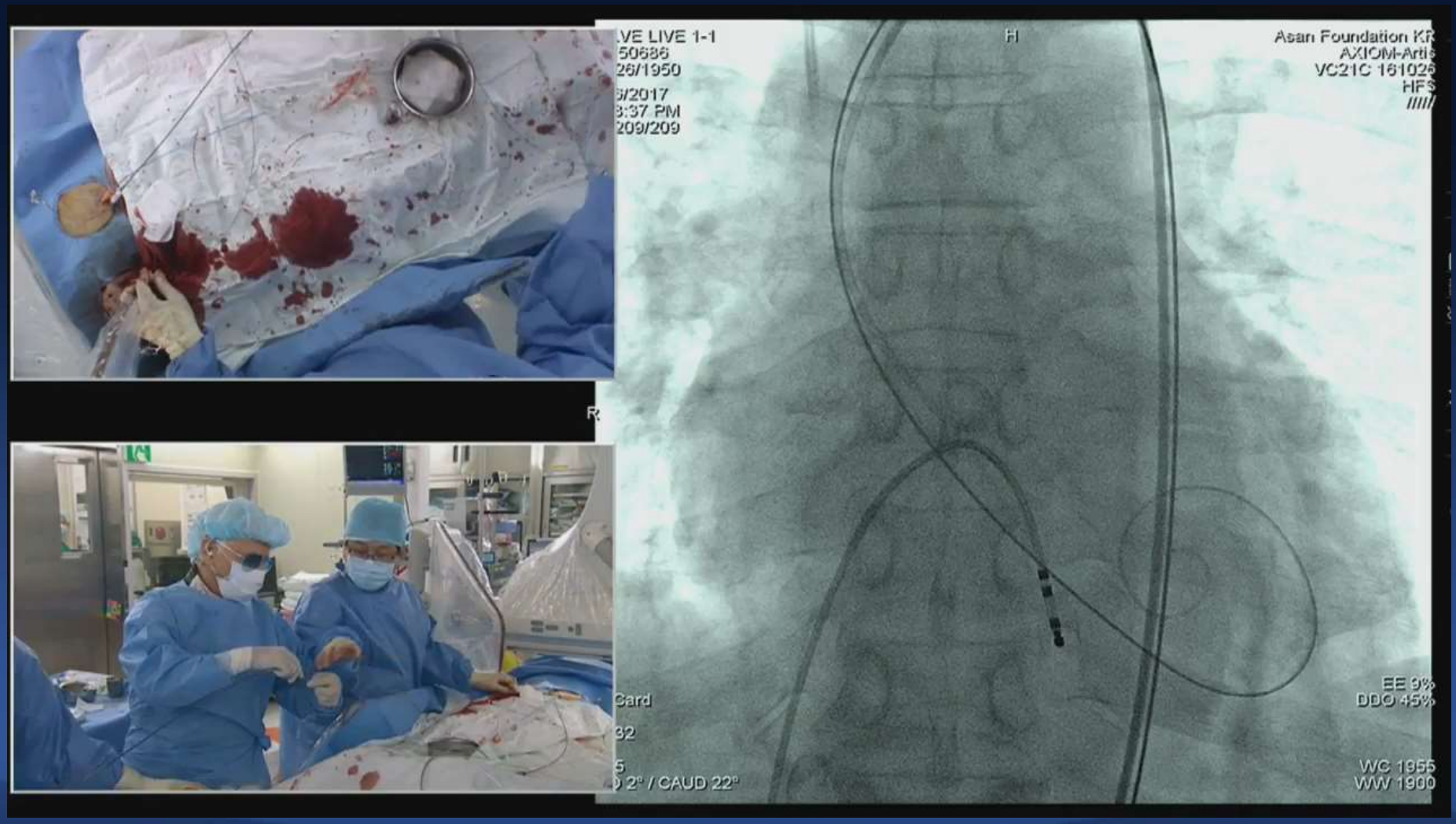
Imaging Projection:

- **AP projection**
- **High magnification**
- **Low resolution to locate paddles**
- **High resolution (30 FPS) for load check**

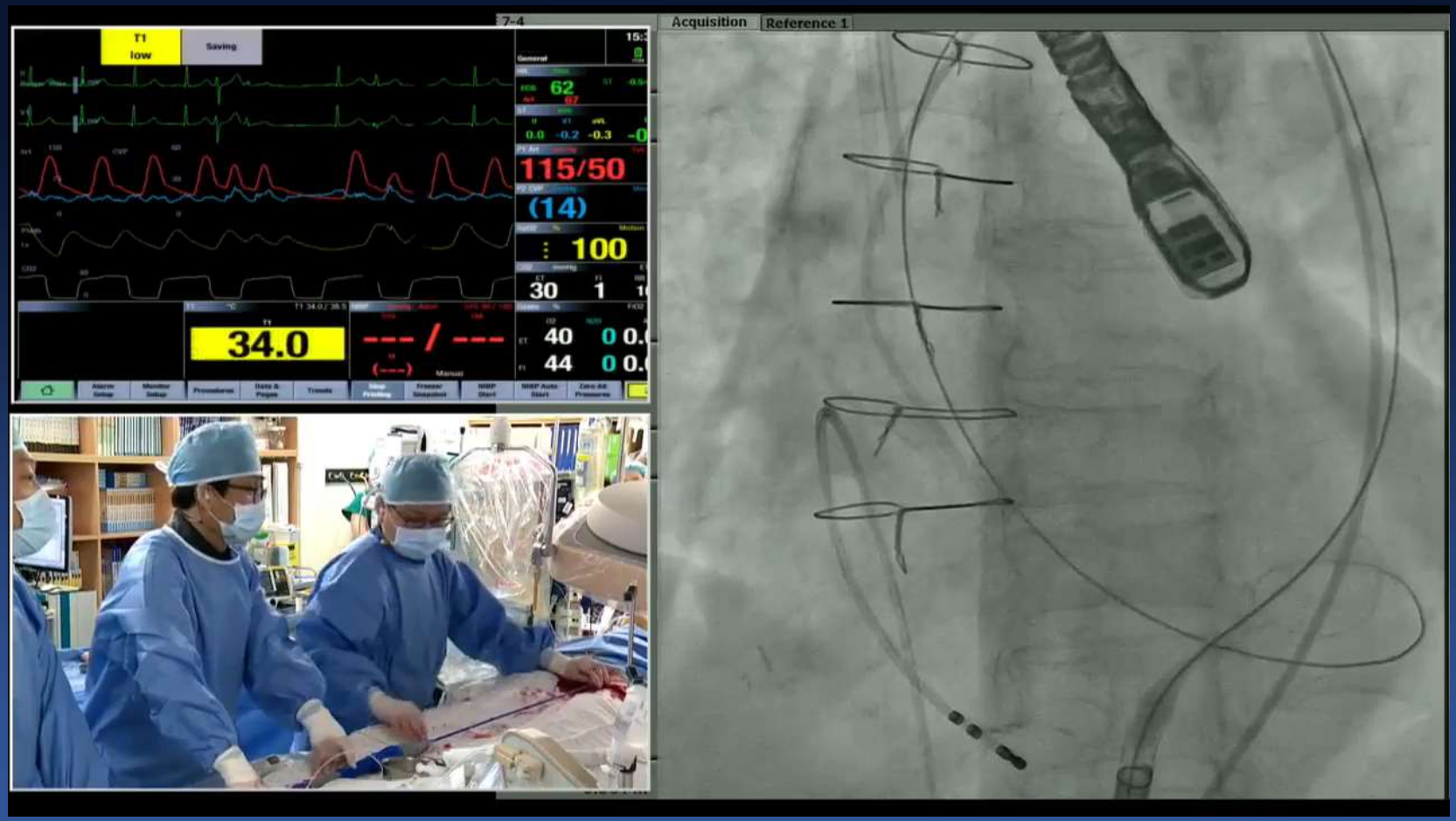
Delivery System:

- **Flush ports at 3:00/9:00**
- **Capsule flat on table or patient**
- **Rotate delivery system a few degrees in either direction until both paddles are visible simultaneously**

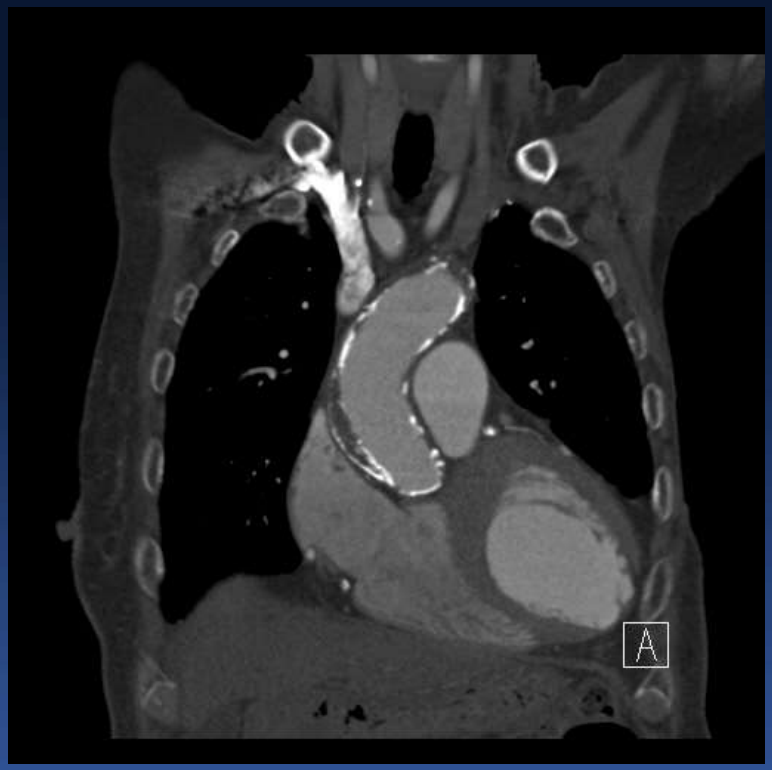
Introduce the Delivery System and Position System Within Native Annulus

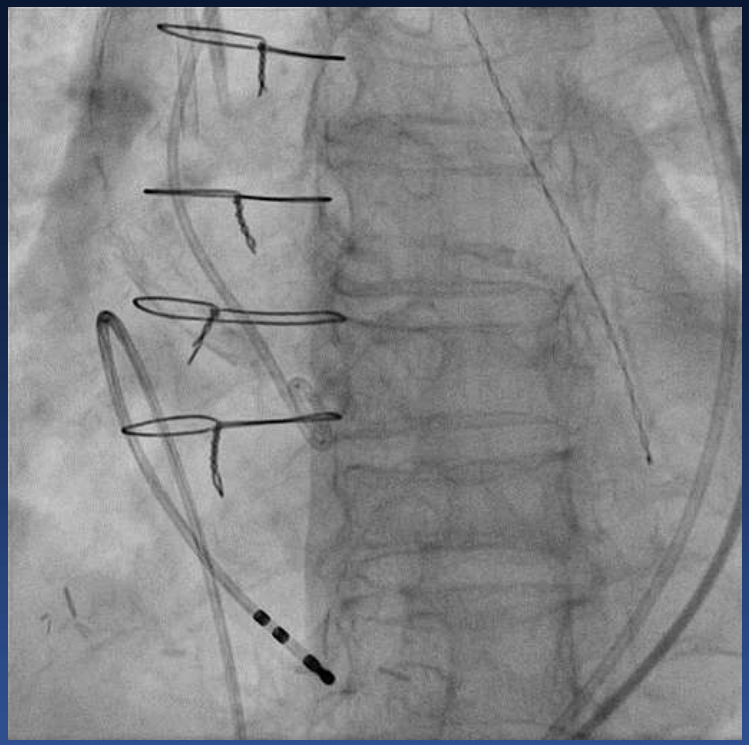


Hard to Deliver the System

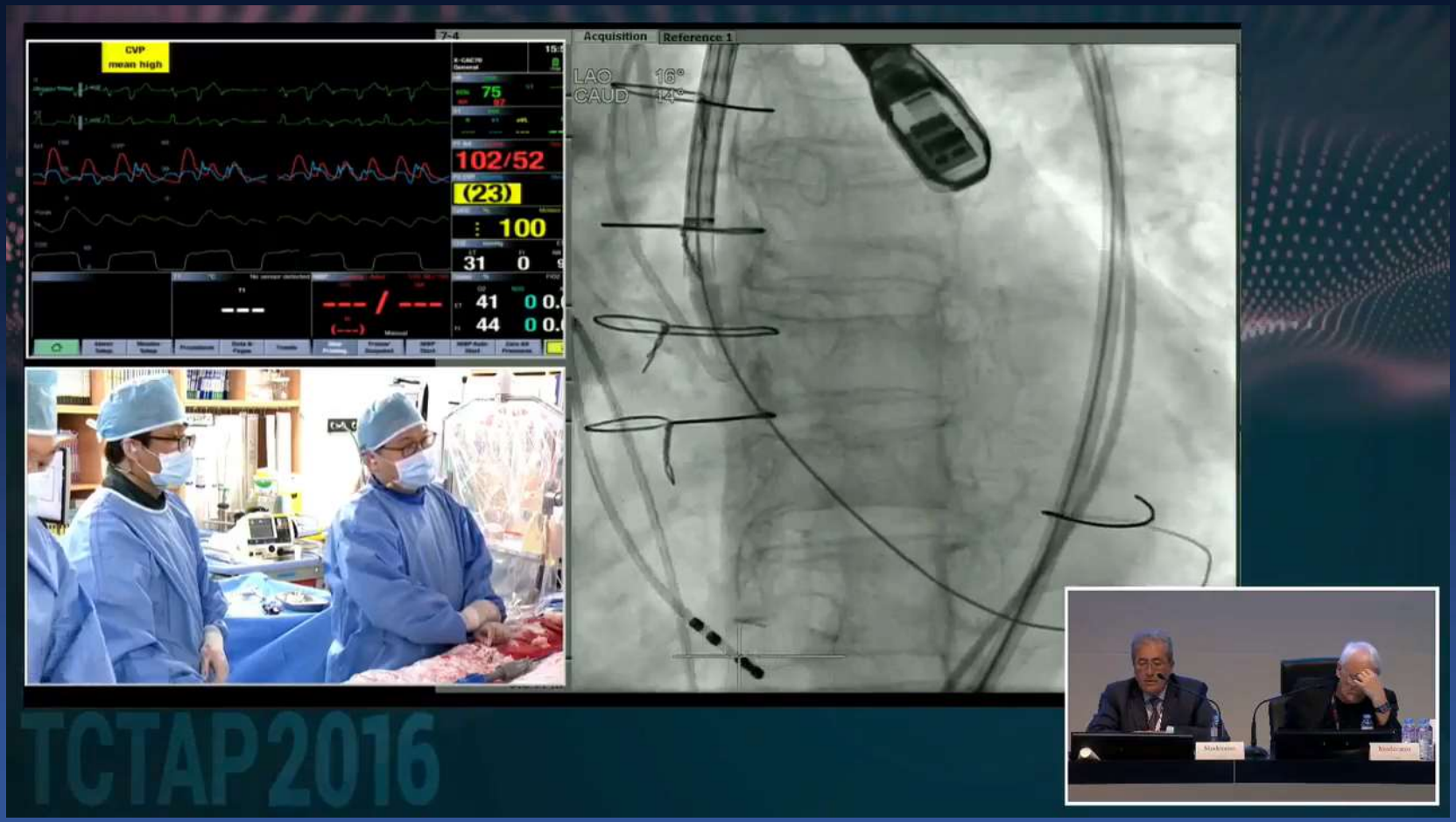


Bone-Like Aorta

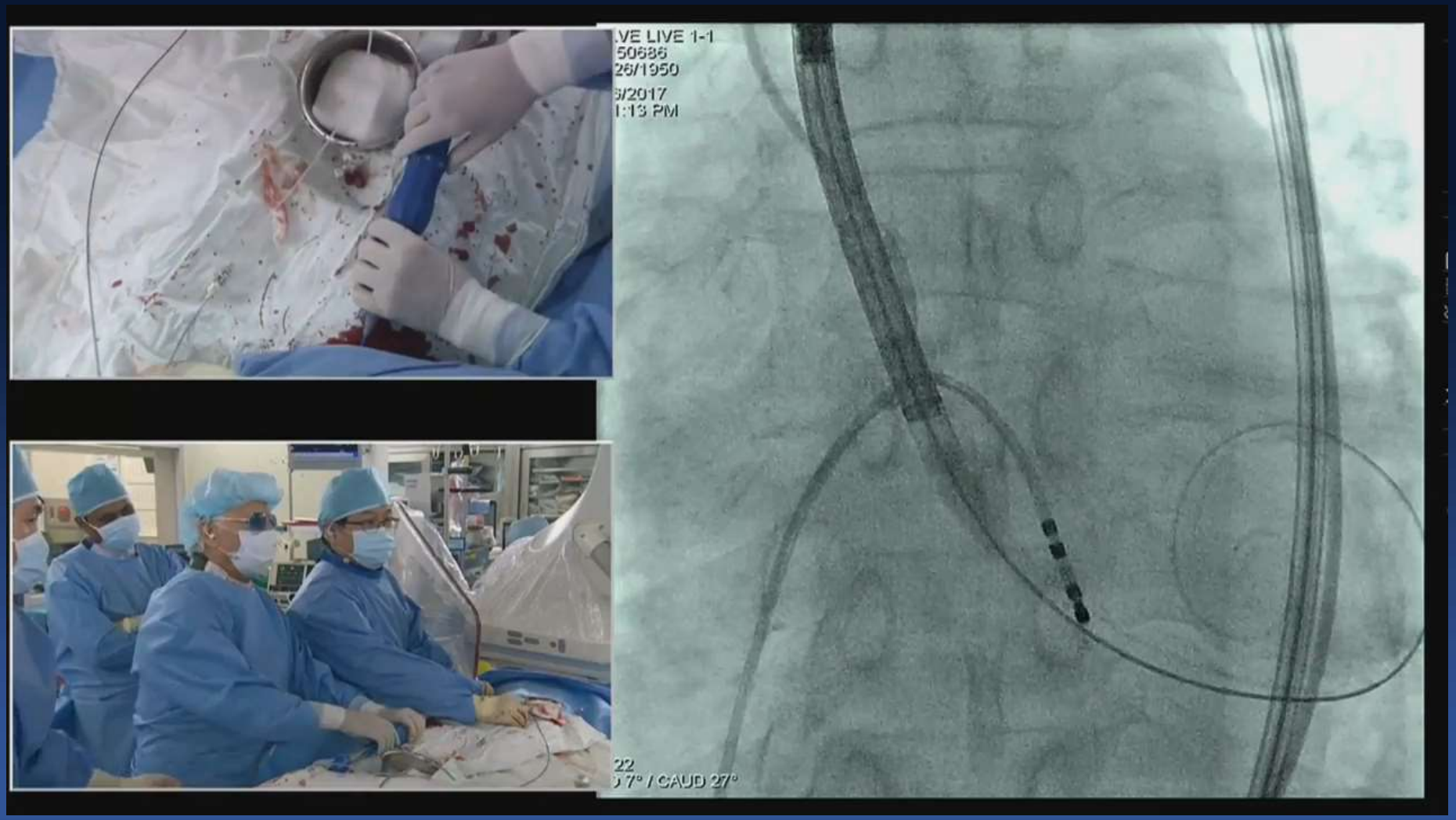




Stiffer Guidewire: Lunderquist



Deployment



Case 2: CAD and Low Coronary Height

- 91/M , 168.2 cm, 68.9 kg, BMI 24.3
- Chief complaints

  - DOE (NYHA class II?)
- Medical history

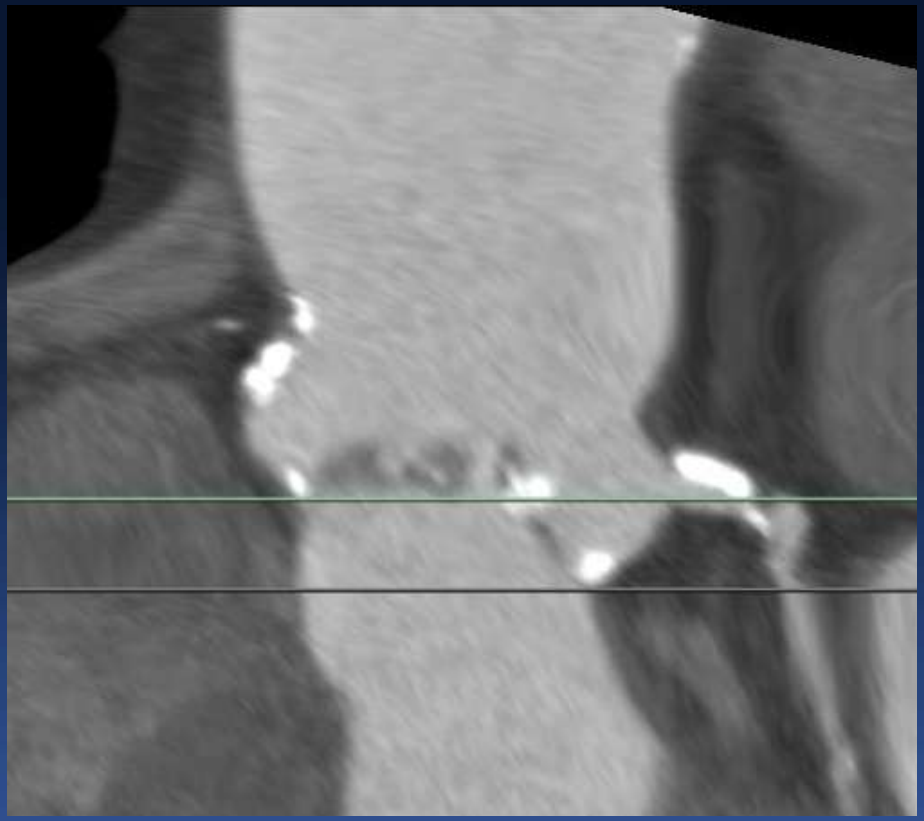
  - Hypertension
  - h/o stomach cancer

  EuroSCORE = 10.14%, EuroSCORE II = 3.11%

  STS score = 5.115%

Significant CAD

Low Coronary Height

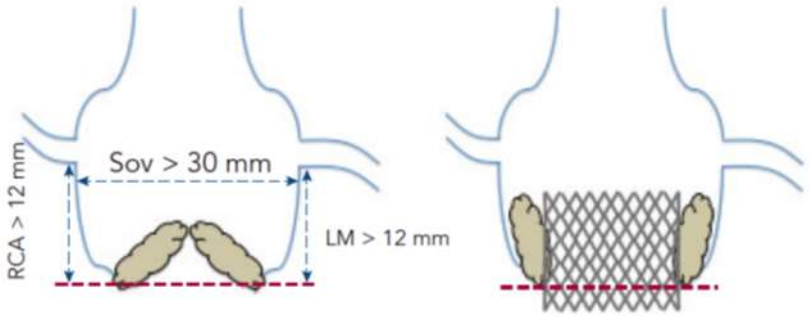


LCA Height 7.8mm

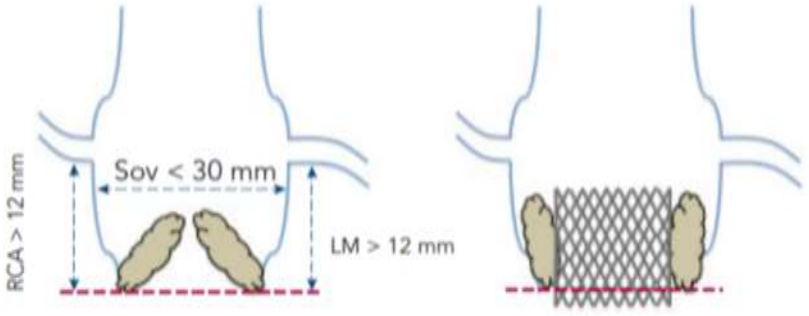
SOV 33 mm

Aortic Root Scenarios For Coronary Obstruction

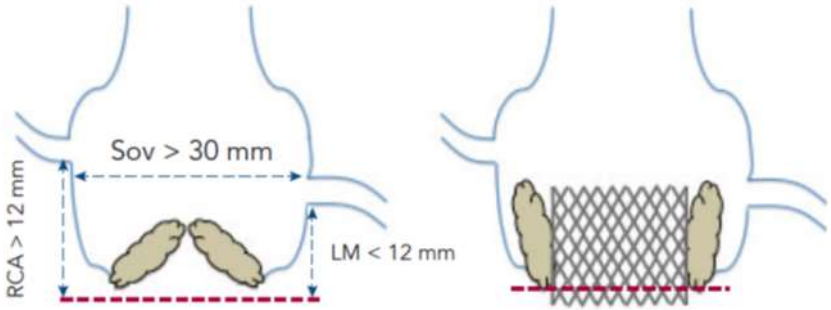
Wide and High



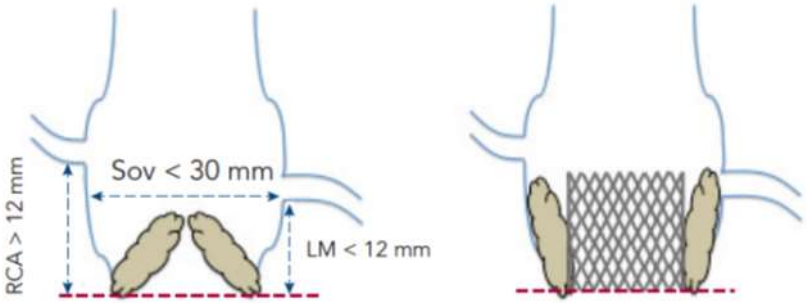
Shallow and High



Wide and Low



Shallow and Low



Interventional Cardiology Review, 2015;10(2):94–7

Low Coronary Height

- Tapered shape of the frame
- If needed, coronary access can be achieved through the struts of the frame
- Can be completely recaptured in an emergency situation

Case 2: Low Coronary Height