



**Severe aortic stenosis and acute  
type A proximal aortic dissection**

# The Patient

- 84 year-old female, NYHA III dyspnea, angina
- Severe aortic stenosis
  - $V_{MAX}$  5.97m/s, mean gradient 90mmHg, moderate AR
  - Severe concentric LVH (IVS 24mm) LV-EF 70%
- Coronary angiography: No stenosis
- Comorbidities: Hypertension, carotid atherosclerosis
- EKG: Sinus rhythm, LVH
- Rx: Irbesartan, Furosemide, statin

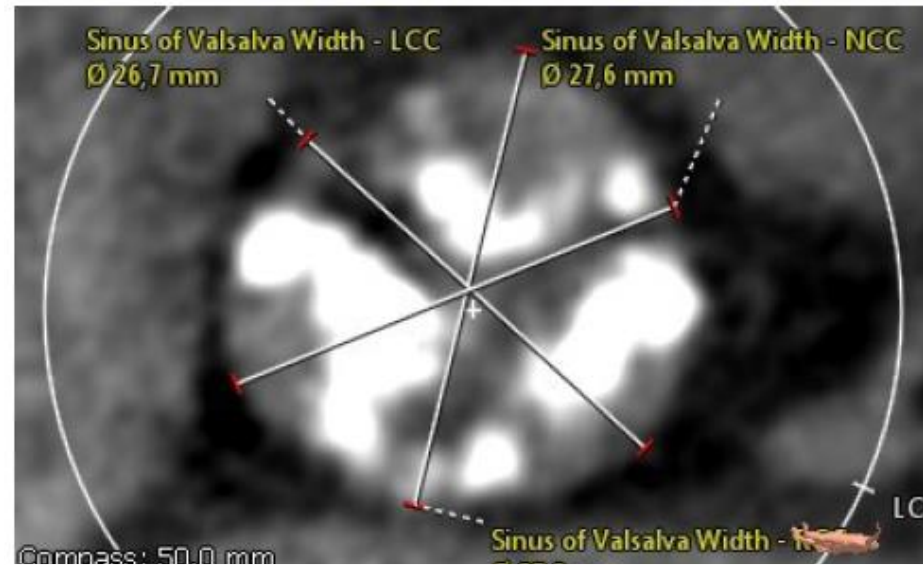
# MDCT: Aortic Root

## ANNULUS

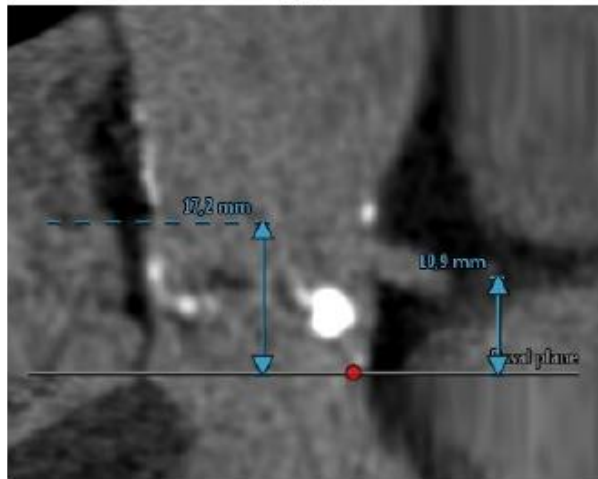
Diameter (mm)	18,5	x	25,0	,	21,8 mm
	Min		Max		Mean
Perimeter (mm)	68,6				21,8
					Derived Diameter

Area 359,9 mm<sup>2</sup>, 21,4 mm  
Derived Diameter

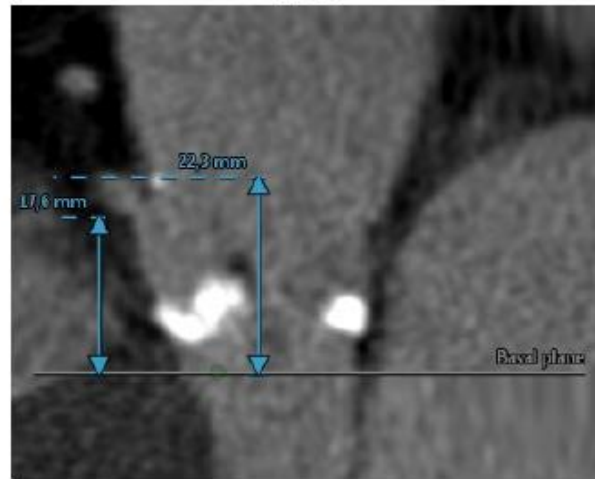
## SOV DIAMETER



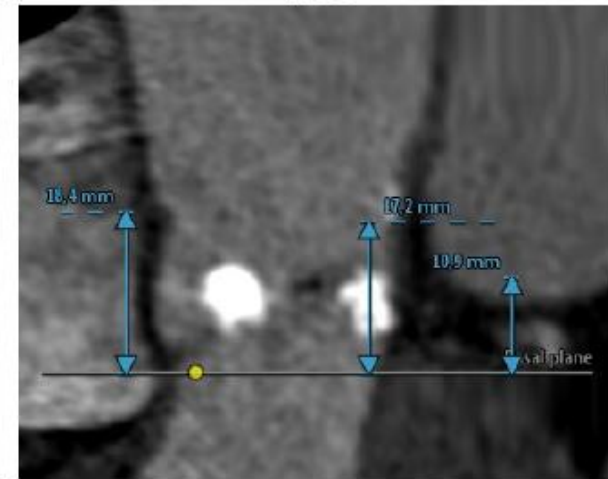
LCC



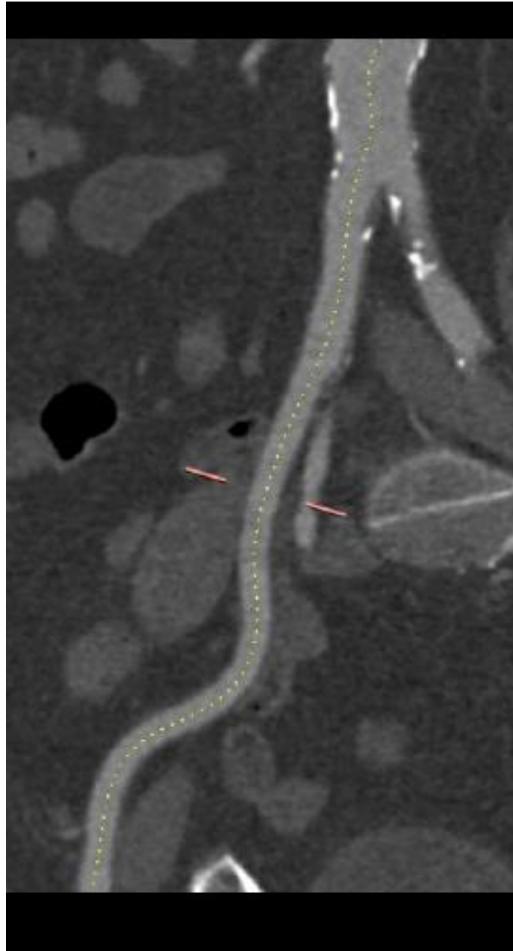
RCC



NCC



# MDCT: Peripheral Arterial Access



RIGHT	
CIA Min Diameter (mm)	8,3 x 9,0
EIA Min Diameter (mm)	6,7 x 8,1
Femoral Min Diameter (mm)	6,3 x 7,6



LEFT	
CIA Min Diameter (mm)	7,5 x 10,0
EIA Min Diameter (mm)	6,8 x 8,1
Femoral Min Diameter (mm)	5,6 x 7,0

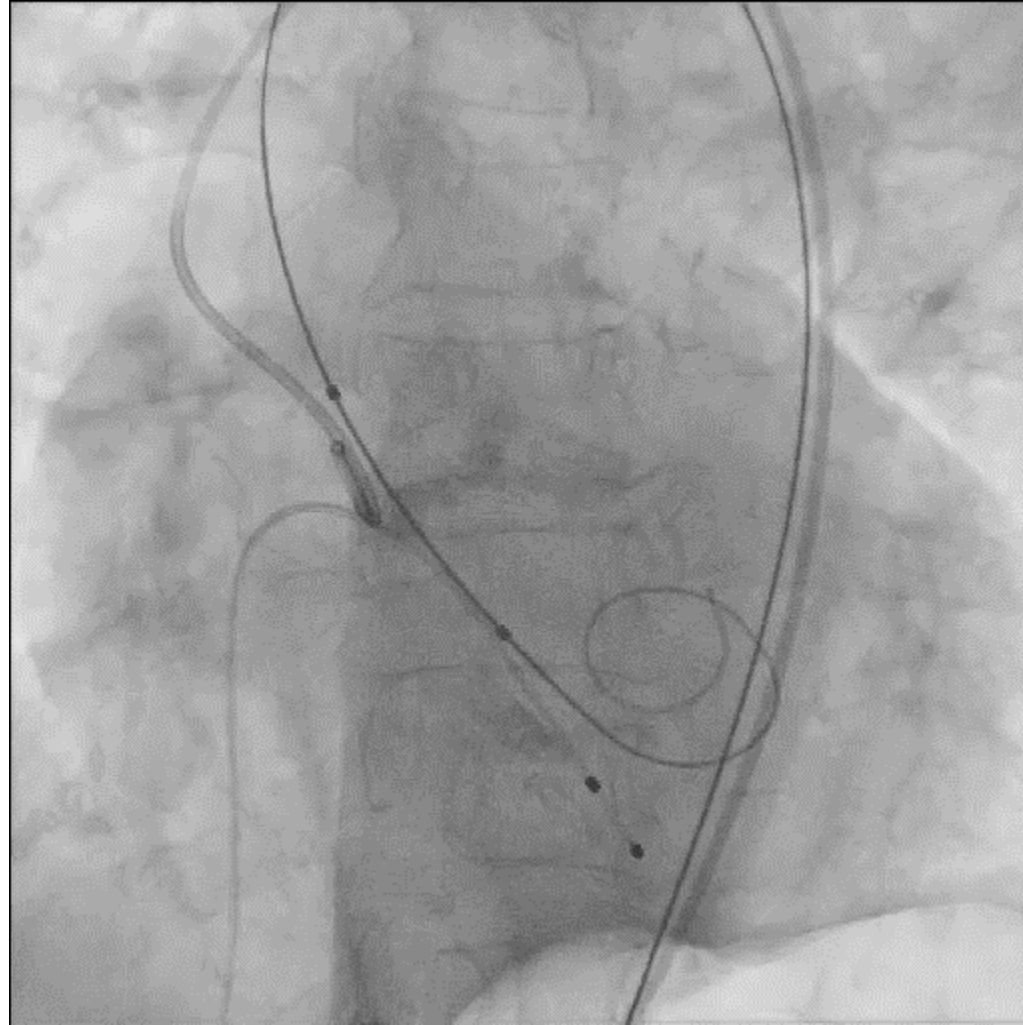
Calcium: Mild  Moderate  Severe



# Procedural Plan-Potential Issues

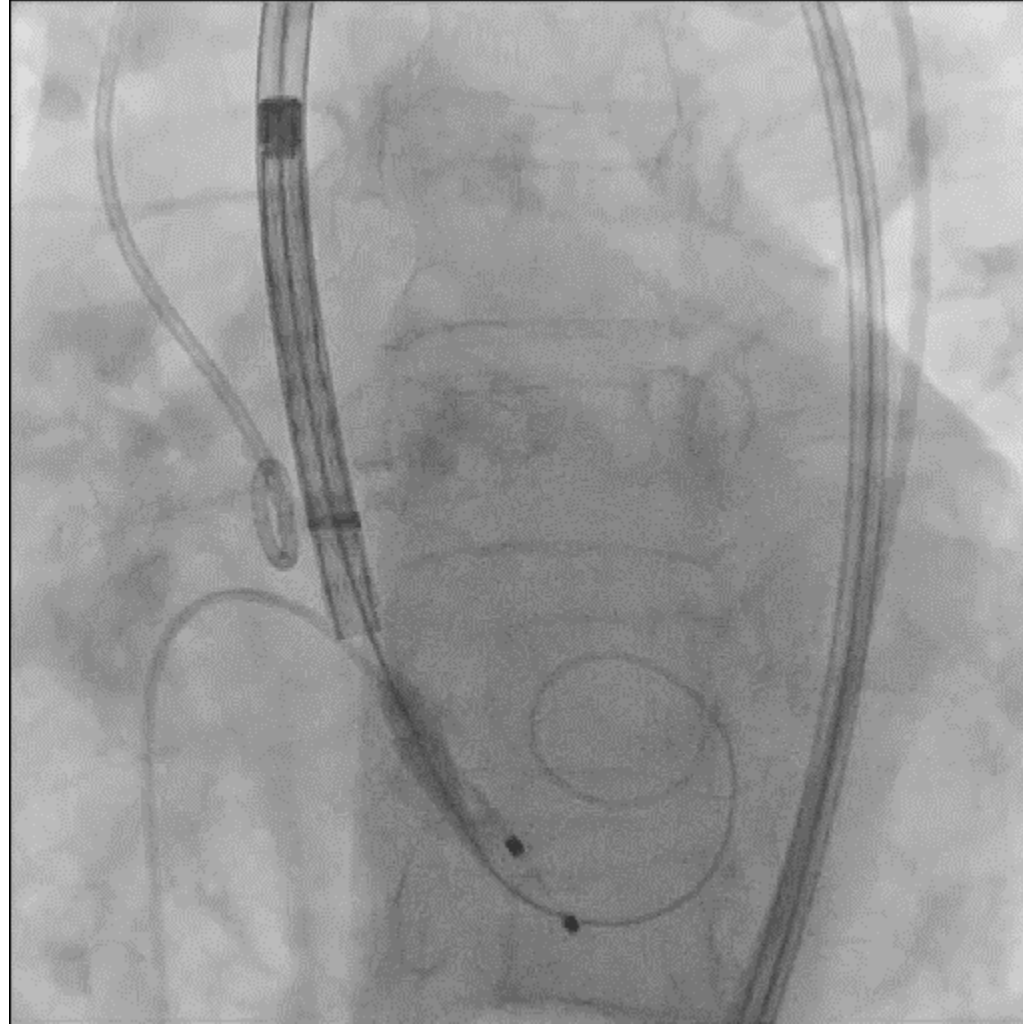
- Access: Transfemoral with Proglides for closure
- Severe aortic stenosis
  - BAV recommended to ensure adequate expansion during prosthesis implantation
- Relatively narrow sinuses of Valsalva at 26-27mm
  - Evolut R 26mm has a waist of 22mm
  - Left main is at 11mm from annulus
- Severe LVH, risk of hyperdynamic LV syndrome, avoid inotropes, fluid loading post procedure

# Balloon aortic valvuloplasty (18x45mm balloon)



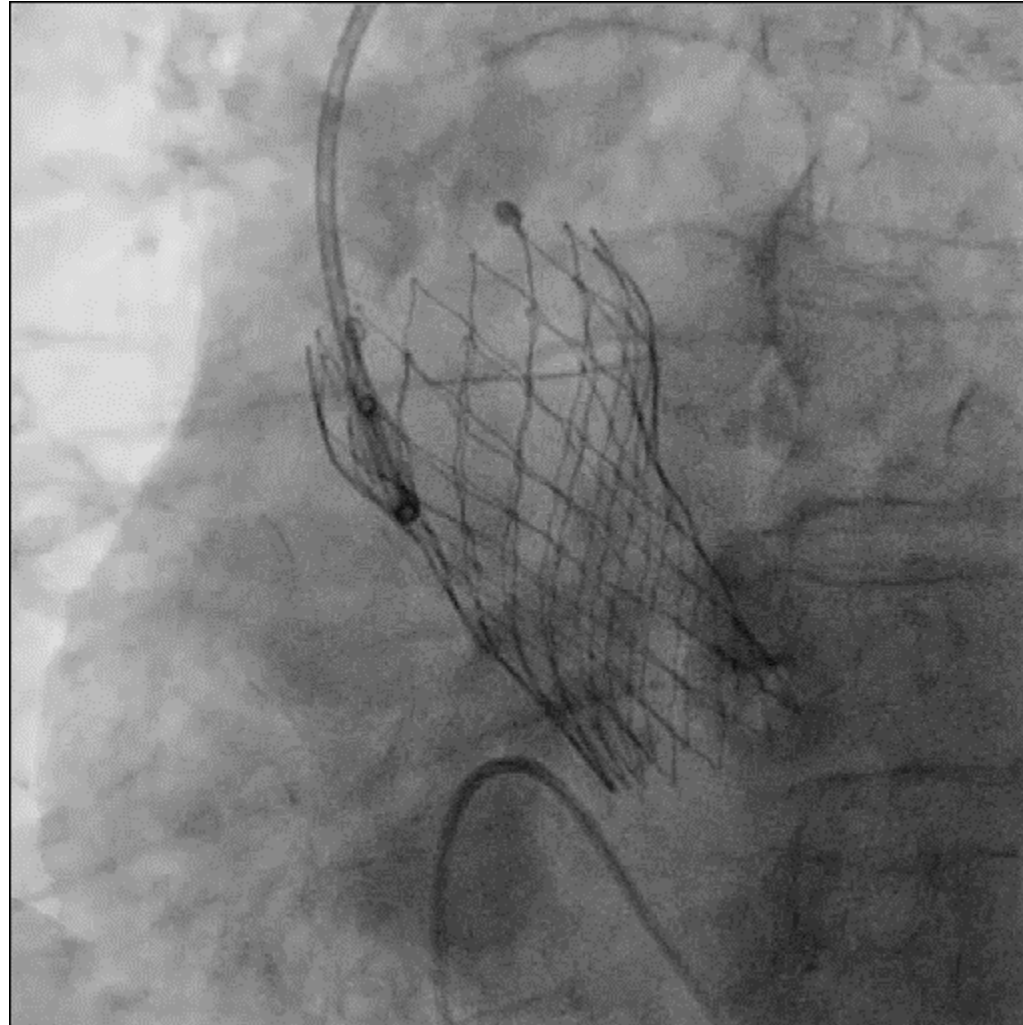
**Acute type A aortic dissection seen immediately after BAV, originating from non-coronary sinus and gradually extending to the ascending aorta**

# Type A aortic dissection: Positioning of Evolut R 26mm





Final Result: Sealing of aortic dissection  
by the stent frame and resolution of  
aortic stenosis

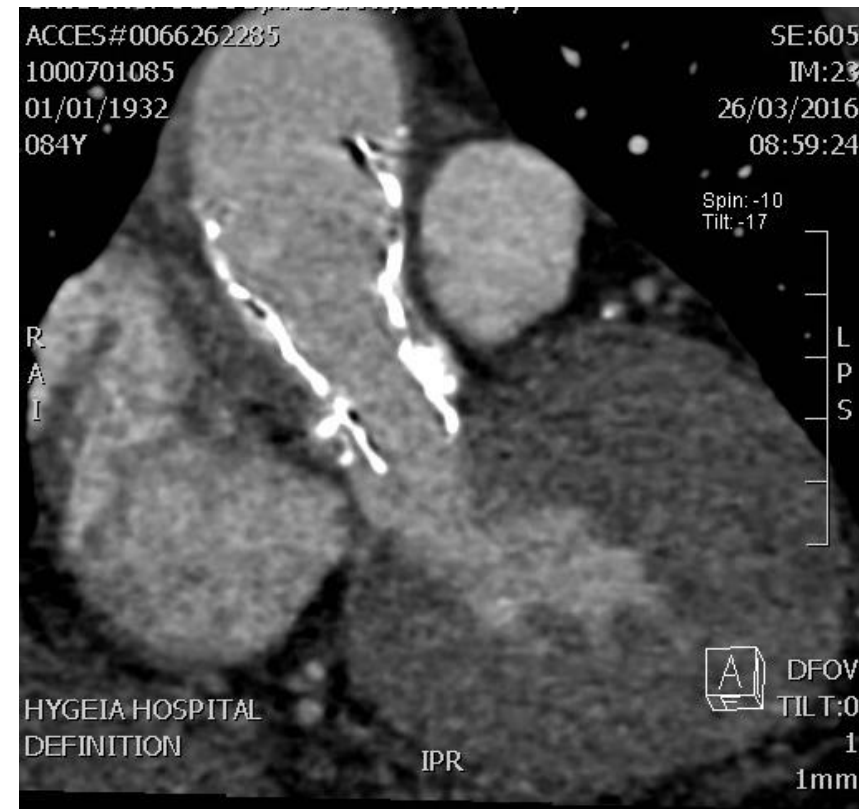


# MDCT

## Post Procedure



## 48-hours later



# Discussion

- Acute type A aortic dissection immediately after balloon valvuloplasty with simultaneous power injection of contrast in the aortic root
  - Unexpected and rare complication
  - Note BAV size matching minimal annulus diameter on MDCT i.e. not aggressive predilatation
- Elongated frame of the Evolut R prosthesis allowed sealing of the dissection plane in the ascending aorta, in addition to resolving severe aortic stenosis
  - Unique advantage of self expandable TAVI valves with elongated stent frames (compared with shorter frames of balloon expandable valves)