

# Interventional Cardiology

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**How can I improve quality of life  
for patients with aortic valve stenosis with  
a minimally invasive procedure?**

# Clinical Practice Disclaimer

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- Any of the protocol(s) presented herein are for informational purpose and are not meant to substitute for any clinical judgment in how best to use any medical devices> it is the clinician that makes all diagnostic determinations based upon educational, learning and experience.

# Transfemoral aortic valve implantation – an option in severe aortic stenosis patients

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# Patient History

- 68 year old female patient
- **Complaint:** severe dyspnea (NYHA III)
- **History:**
- Known severe aortic valve stenosis
- known Coronary Artery Disease,
  - post CABG 2002 #1
    - LIMA-LAD patent,
    - RIMA-RCA patent
    - rad art.-M1 occluded
  - post CABG 2003 #2
    - jump graft –M1
- Insulin dependent diabetes mellitus
- Rheumatoid arthritis

# Patient History

- Transthoracic 2D Echocardiography:
  - Ejection Fraction 38%
  - Ao Volume max 2.7m/sec
  - Ao Pressure max 30 mmHg  
Ao Pressure mean 17 mmHg
  - Ao Valve area 0.9 cm<sup>2</sup>
  - Pulmonary Artery Systemic Pressure 30 mmHg
  - Mitral Insufficiency, MI, Grade II

# Patient Selection Matrix

Anatomy	Non-Invasive		Angiography				Selection Criteria		
	Echo	CT /	LV gram	AO Gram	Coronary Angiogram	AO & Runoffs	Preferred	Borderline	Not Acceptable
Atrial or Ventricular Thrombus	X						Not present		Present
Mitral Regurgitation	X						≥ Grade 1	Grade 2	> Grade 2
LV ejection Fraction	X		X				> 50%	30% to 50%	< 20%
LV Hypertrophy (wall thickness)	X						Normal to Mild (0.6 to 1.3 cm)	Moderate (1.4 to 1.6 cm)	Severe (≥ 1.7cm)
Sub-Aortic Stenosis	X	X					Not present		Present
Annulus (width)	X	X					20 to 23mm → 26mm device 24 to 27mm → 29mm device		< 20mm or > 27mm
Annulus-to-Aorta (angle)		X	X	X			< 30°	30° to 45°	> 45°
AO root (width)		X	X	X			≥ 30mm	27 to 29mm	< 27mm (if Sinus <15mm)
Sinus of Valsalva (height)		X	X	X	X		≥ 15mm	10 to 14mm	< 10mm
Coronary Ostia Position (take-off)					X		High	Mid-Sinus Level	Low
Coronary Disease					X		None	Mid or Distal Stenosis < 70 %	Proximal Stenosis ≥ 70%
Ascend Aorta (width)		X	X	X			≤ 40mm → 26mm device ≤ 43mm → 29mm device		> 43mm
AO Arch Angulation		X		X		X	Large-Radius Turn		High Angulation of Sharp Bend
Aorta + Run-off Vessels (disease)		X				X	None	Mild	Moderate to Severe
Iliac + Femoral Vessels (diameter)		X				X	≥ 7mm	Non-Diabetic ≥ 6mm	< 6mm

# Screening: CT Angiography



# AoValve Measurements

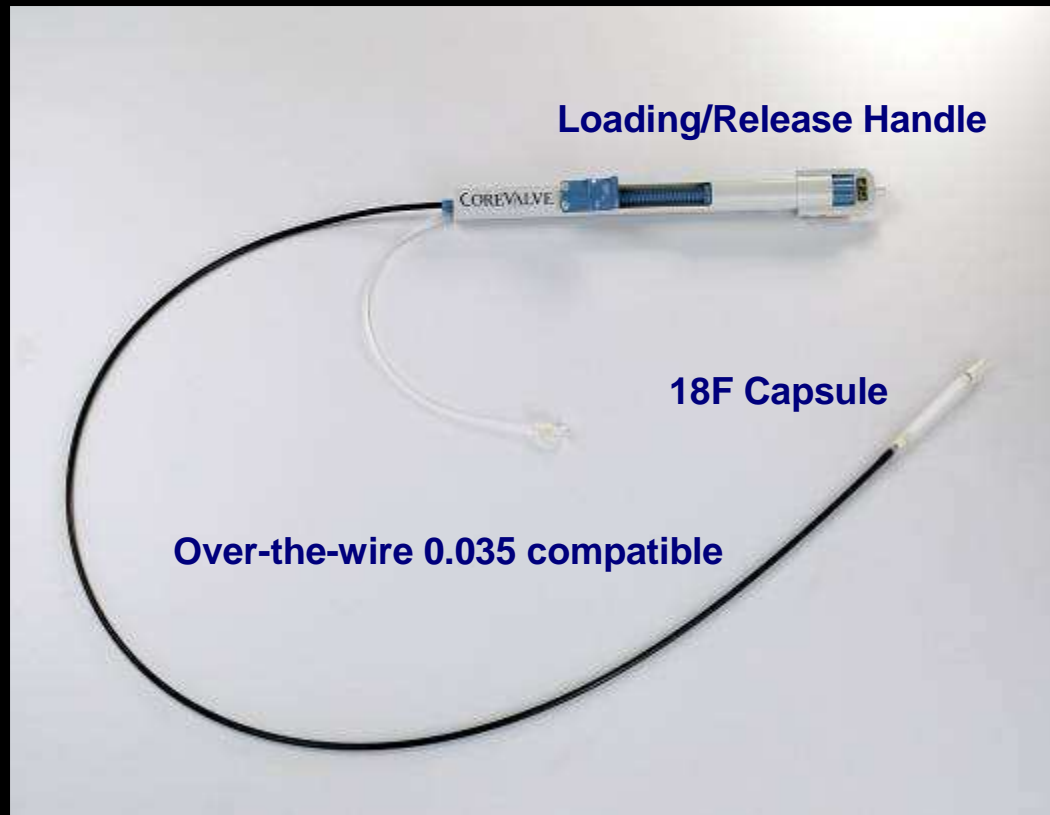


# Right Iliac Artery

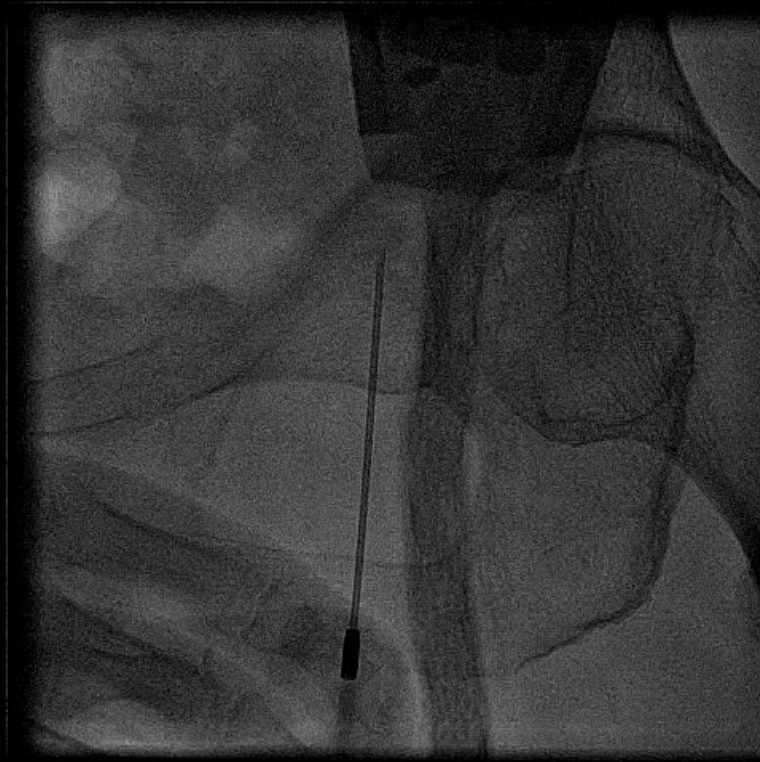




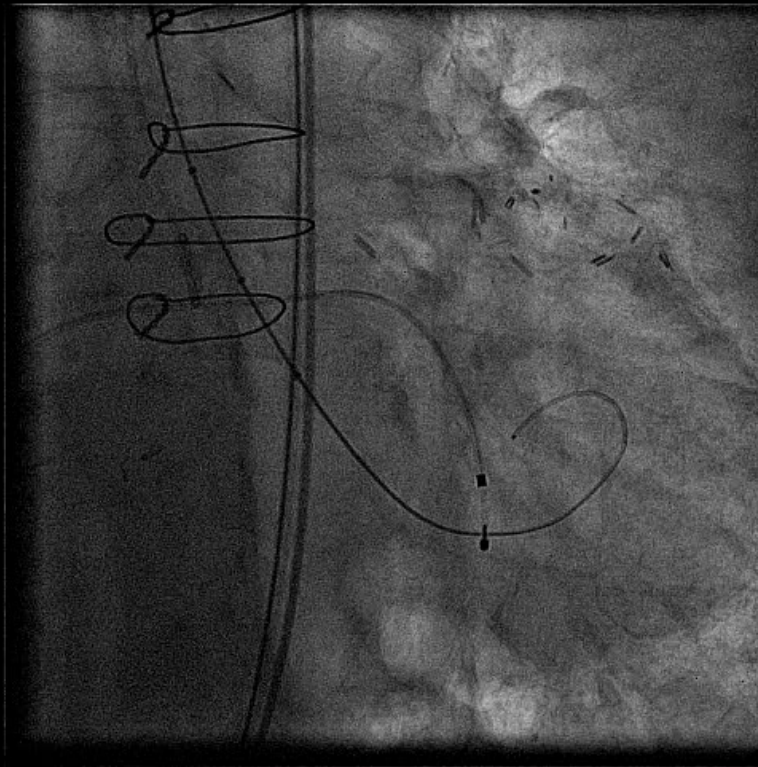
# CoreValve 18F AoV Transcutaneous Implantation



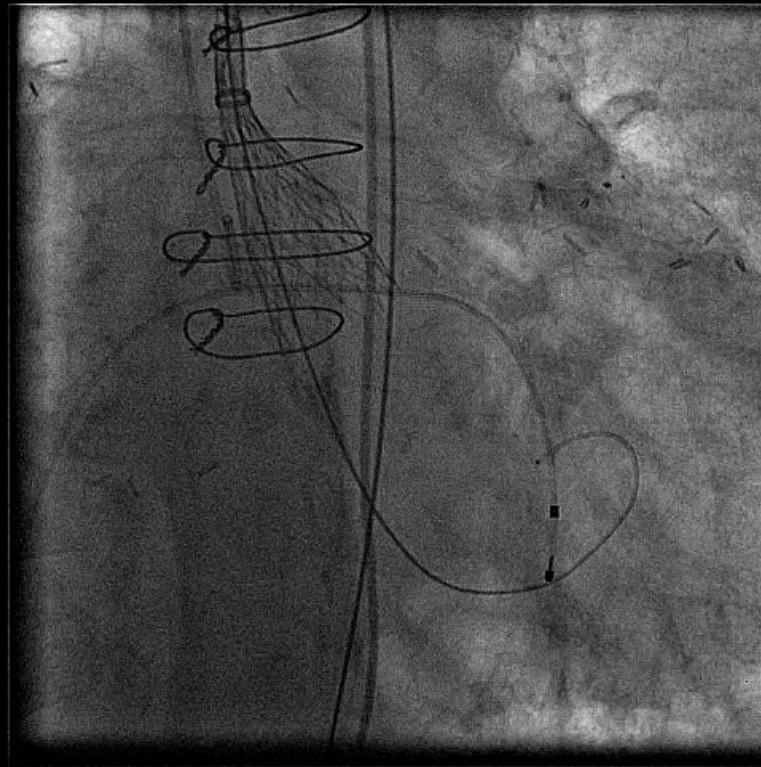
# Left Femoral Artery Access under Fluoroscopy



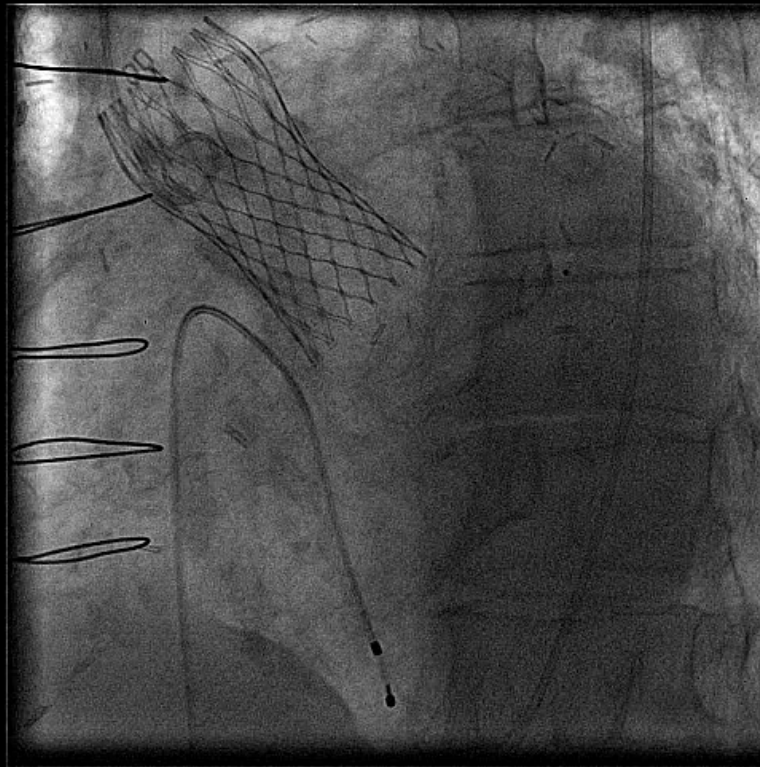
# Balloon Inflation



# Core Valve Deployment

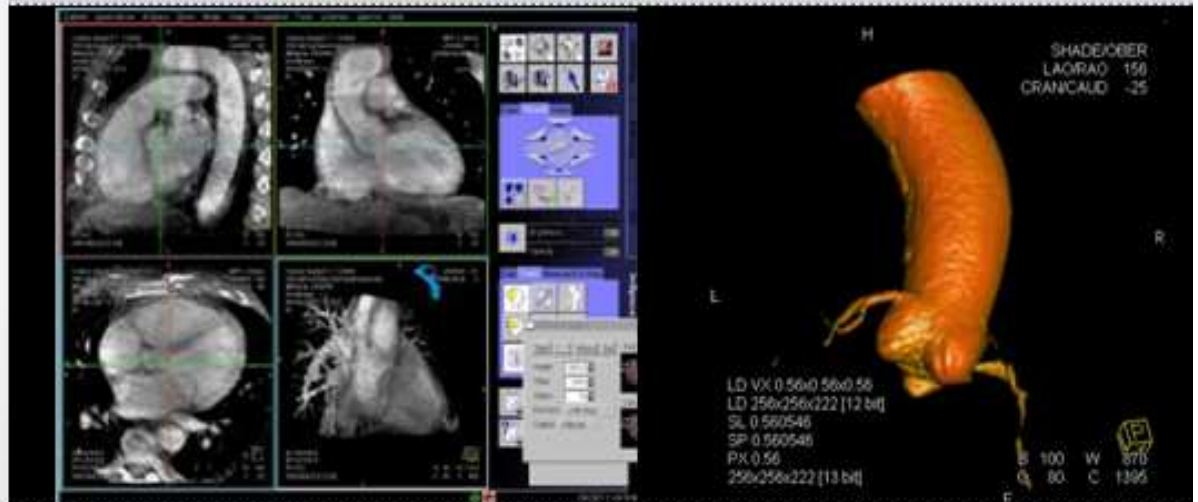


# Outcome



# Transcatheter Aortic Valve Implantation (TAVI) – *syngo* DynaCT Cardiac for intraprocedural volumetric imaging

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*syngo*® DynaCT Cardiac utilized images acquired from a rotational angiography run to display the 3D morphology of the heart.

Volume rendering of the aortic valve and coronary artery ostia were acquired via an aortic root injection over a period of 5 seconds.

The 3D image is available for assessment in the cardiac cath lab in less the 30 seconds following image acquisition.