Complication During VinV Procedure

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Clinical Case

- ✓ 65 years old, male
- ✓ Hypertension
- ✓ Ex smoker
- ✓ Dyslipidemia
- ✓ Peripheral artery disease
- ✓ Chronic kidney disease sCr 1.8 mg/dl, eGFR 43 ml/min

Clinical Case

- ✓ 1997
  SAVR for severe AS (mechanical prosthesis)
  Aorto-femoral & femoral-femoral by-pass for right and left CIA occlusion

- ✓ 1998
  Prosthetic valve thrombosis → re-do with a **St. Jude Toronto Stentless 21**

- ✓ 2010
  Hospitalizations for endocarditis → prosthetic valve degeneration and severe AR (Diastolic BP: 35 mmHg)

- ✓ 2011
  Septic cardioembolic stroke with residual hemiparesis and dysarthria

- ✓ 2013
  Dyspnea at rest (NYHA Class IV)

A touching dilemma
A man trapped in his own body

- ✓Hemiparesis - Weel chair
- ✓Dysarthria
- ✓Dysphagia
- ✓Needing 24/7 assistance
- ✓Aware, asking for therapy

Baseline Imaging

- **Transthoracic echocardiography**:
  - LVEF 55%
  - LVEDD: 65 mm
  - Prosthetic aortic valve degeneration with severe AR
  - Moderate TR (sPAP 50 mmHg)

- **Coronary angiogram**:
  - No coronary artery disease (left dominance)

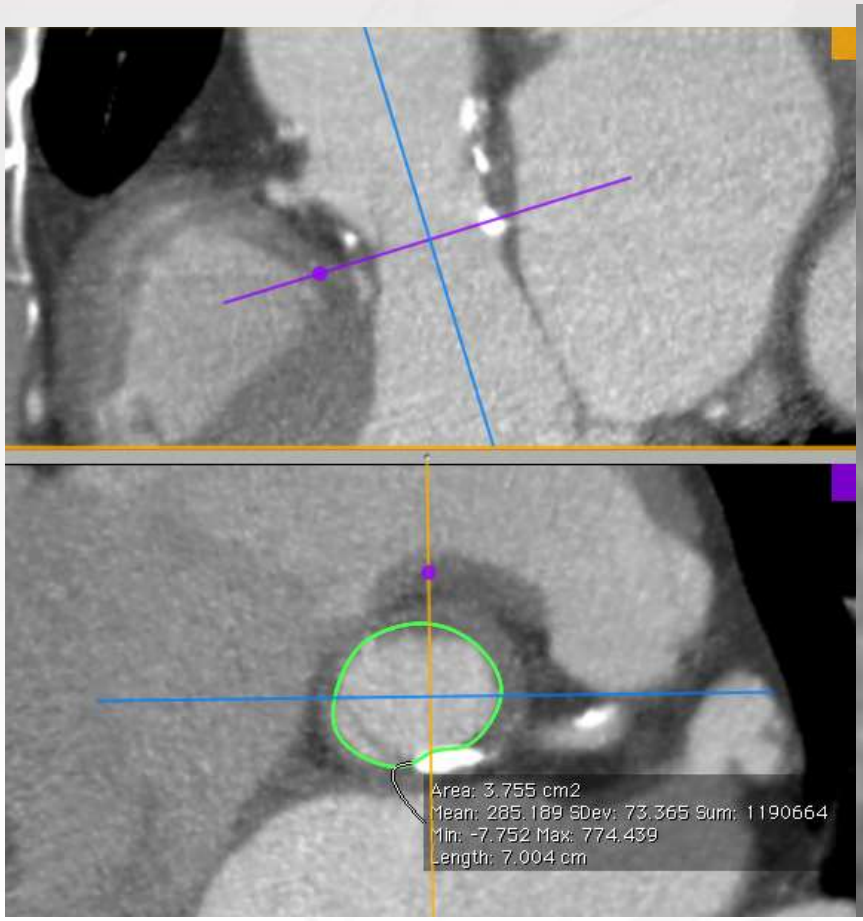
- **MSCT**:
  - annulus measurements
  - coronary ostia height
  - peripheral access evaluation

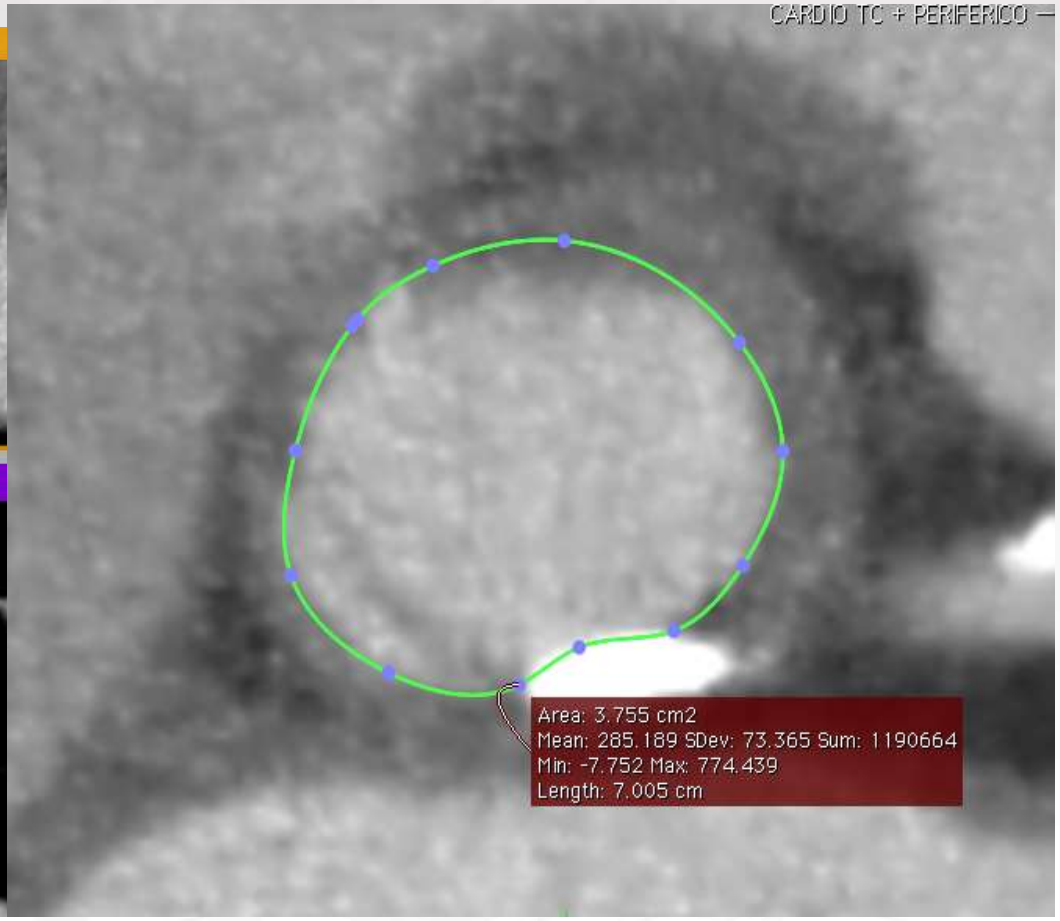
Crossroad # 1

To treat or not to treat

- ✓ Medical therapy (too frail to treat?)
- ✓ Re-re-do
- ✓ Transcatheter ViV

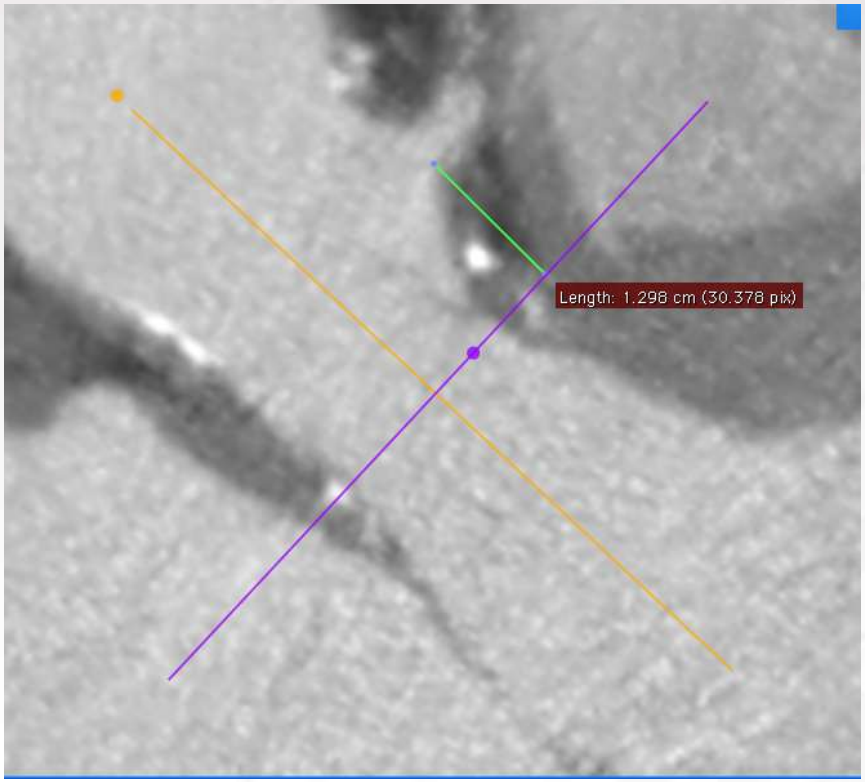
MSCT Measurements: annulus





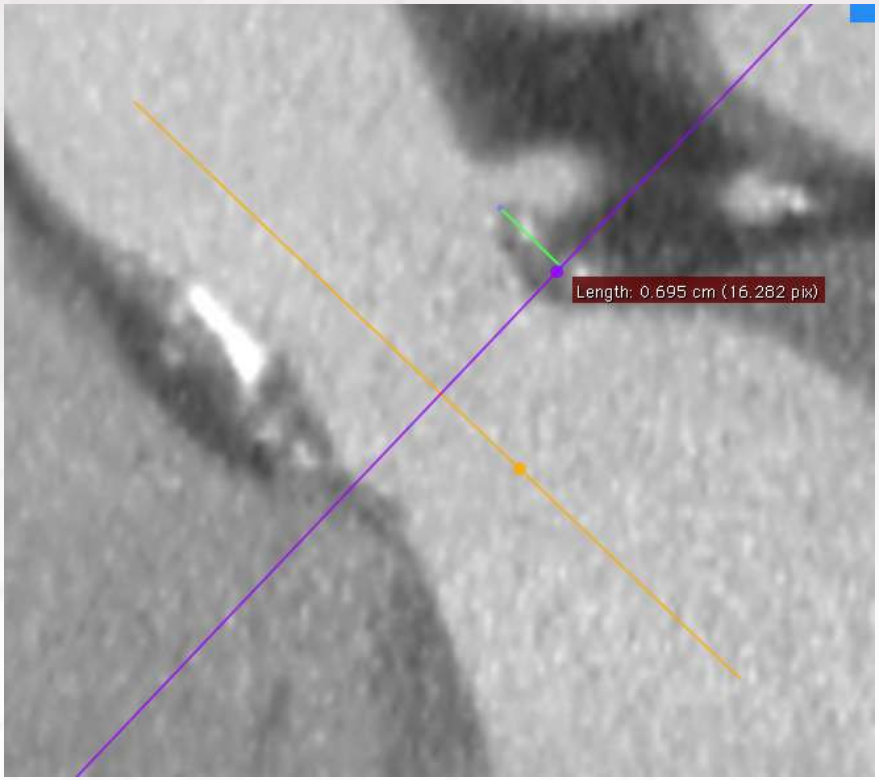
MSCT measurements: Coronary height

RCA



RCA take-off 12.9 mm

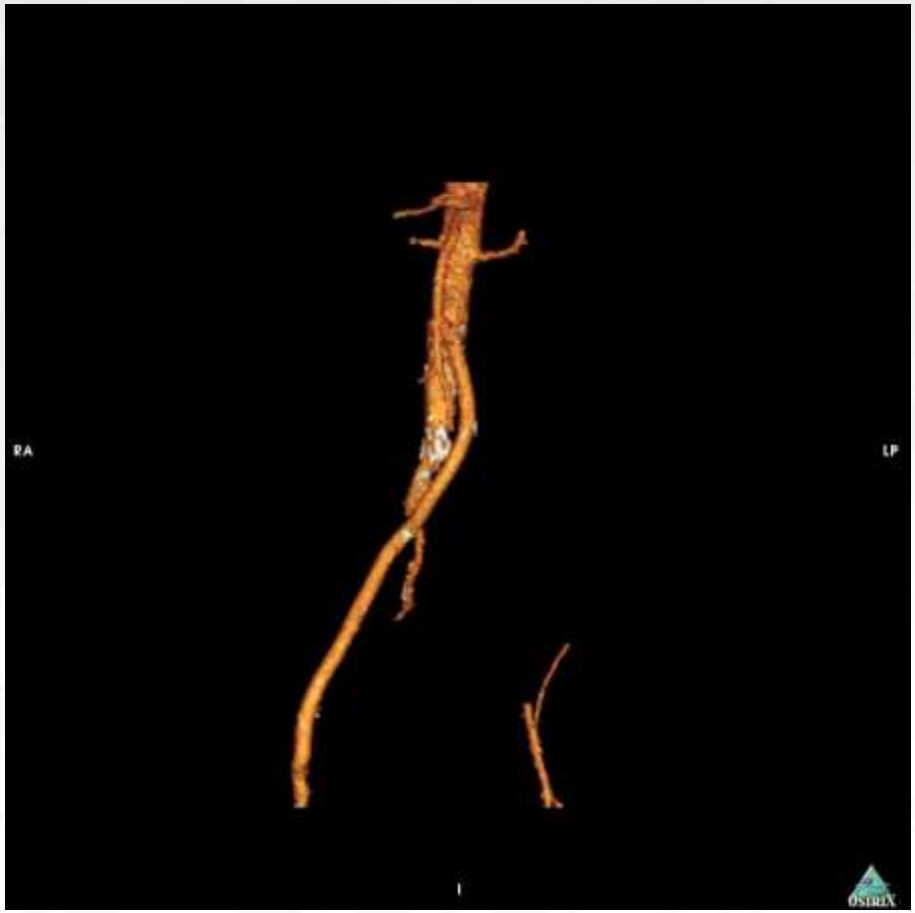
LM



Low LM take-off 6.9 mm

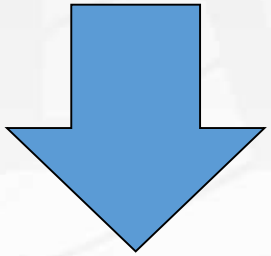
MSCT measurements: peripheral access

- ✓ Left subclavian artery significantly diseased
- ✓ Tortuous right subclavian artery
- ✓ Right aorto-femoral by-pass
- ✓ Femoral-Femoral by-pass



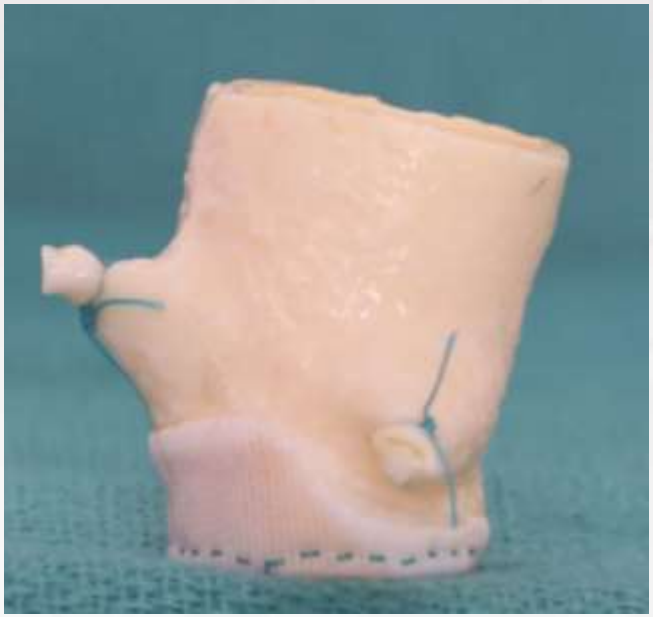
Risk Assessment & Heart Team Discussion

- EuroScore I:
  - Logistic 34.78%
  - Additive 13
- EuroScore II: 16.06%
- STS:
  - Mortality 10.7%
  - Morbidity or Mortality 58.6%



TAVR (ViV)

Toronto Stentless characteristics



- ✓ *Porcine valve*
- ✓ *OD 21*
- ✓ *ID 19*

Crossroad # 2

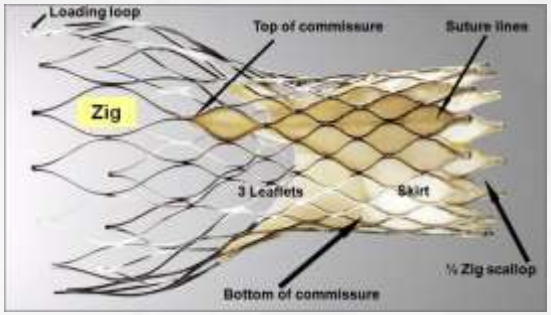
- ✓Which THV?
- ✓Which access route?

COREVALVE for following reasons

- ✓Convex/concave frame shape
- ✓Pure AR with minimum calc
- ✓Direct aortic access

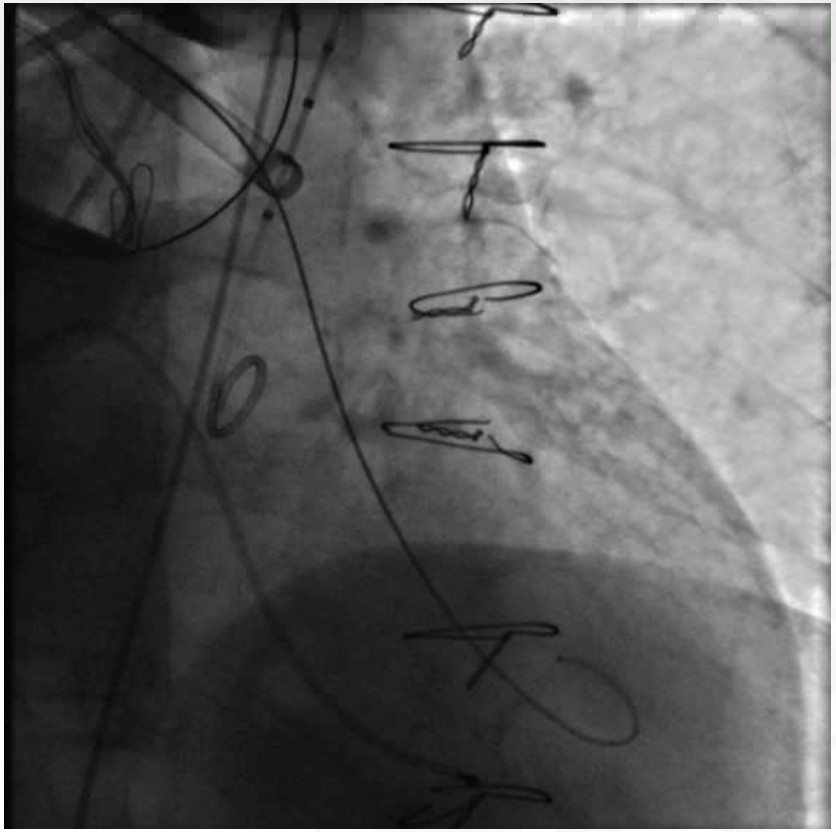
TAVR: Corevalve Revalving System

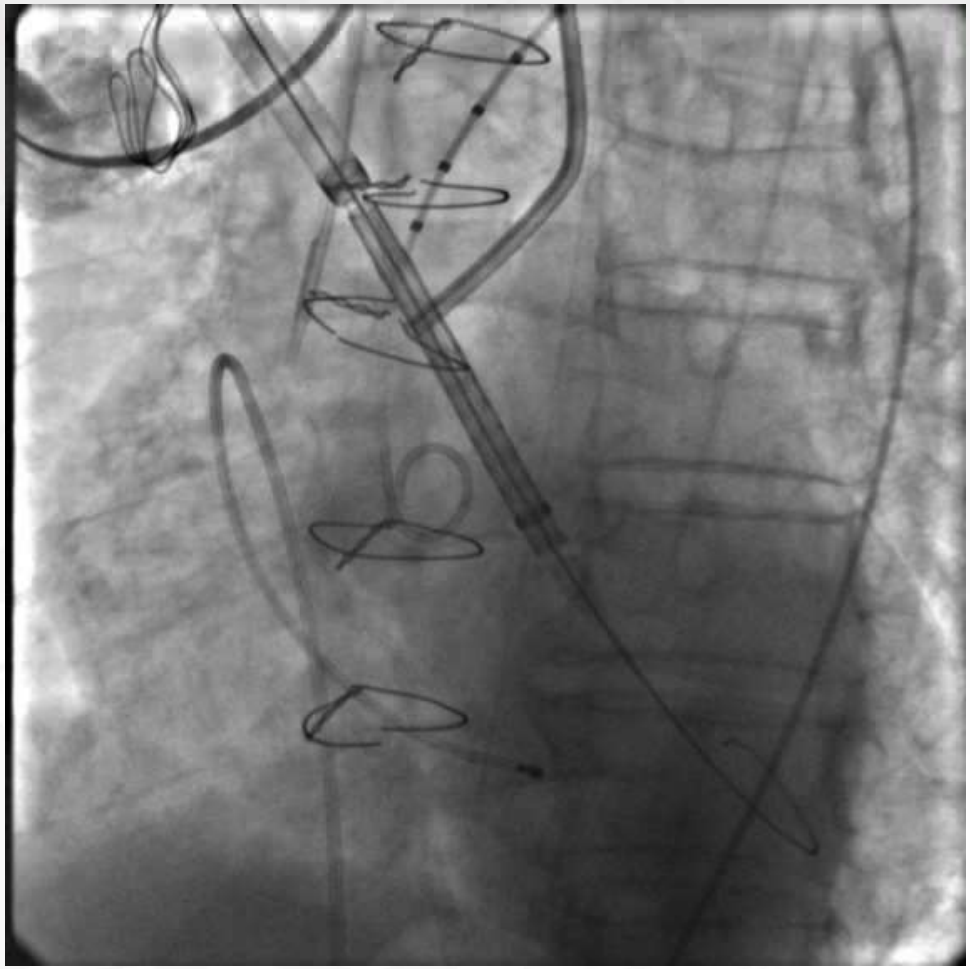
- 26-mm CRS
- Transaortic route



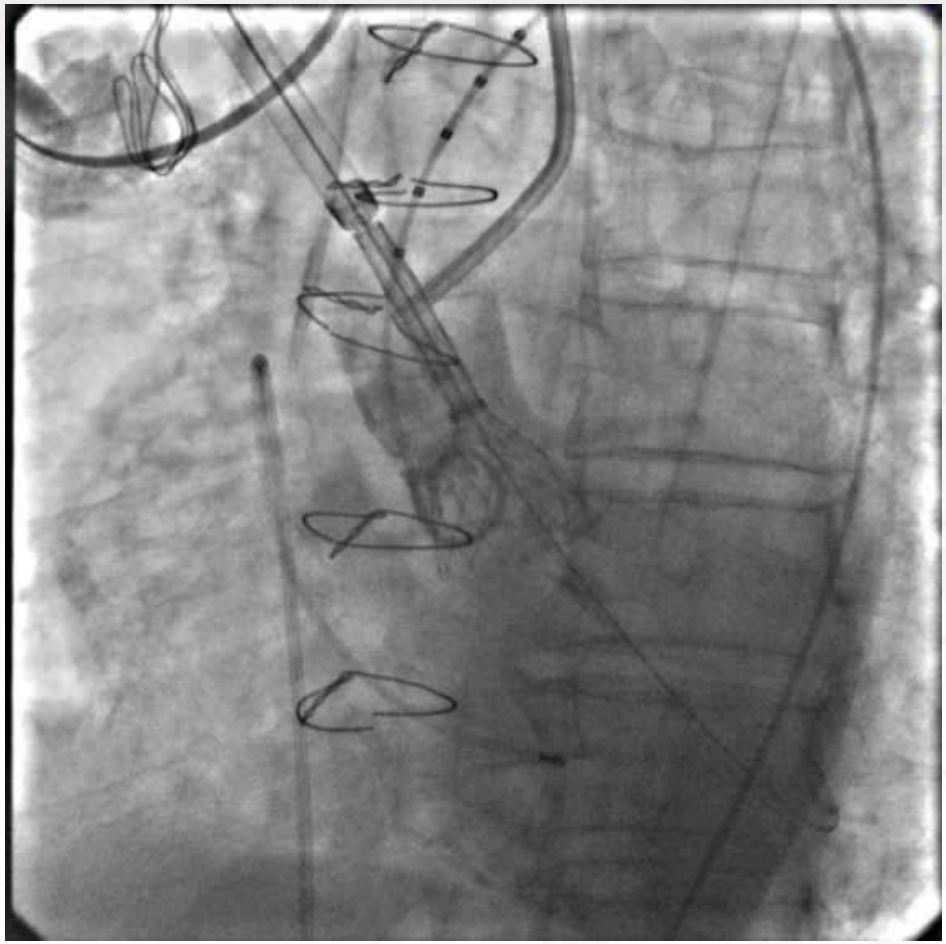
	23mm	26mm	29mm	31mm
Annulus Diameter [mm]	D≥18 D≤20	D≥20 D≤23	D≥23 D≤27	D≥26 D≤29
Annulus Area [cm2]	A≥2,54 A≤3,14	A≥3,14 A≤4,15	A≥4,15 A≤5,72	A≥5,31 A≤6,60
Annulu Perimeters [cm]	P≥5,65 P≤6,28	P≥6,28 P≤7,22	P≥7,22 P≤8,48	P≥8,16 P≤9,11

CRS 26 mm Implantation





CRS 26 mm Implantation



After ViV

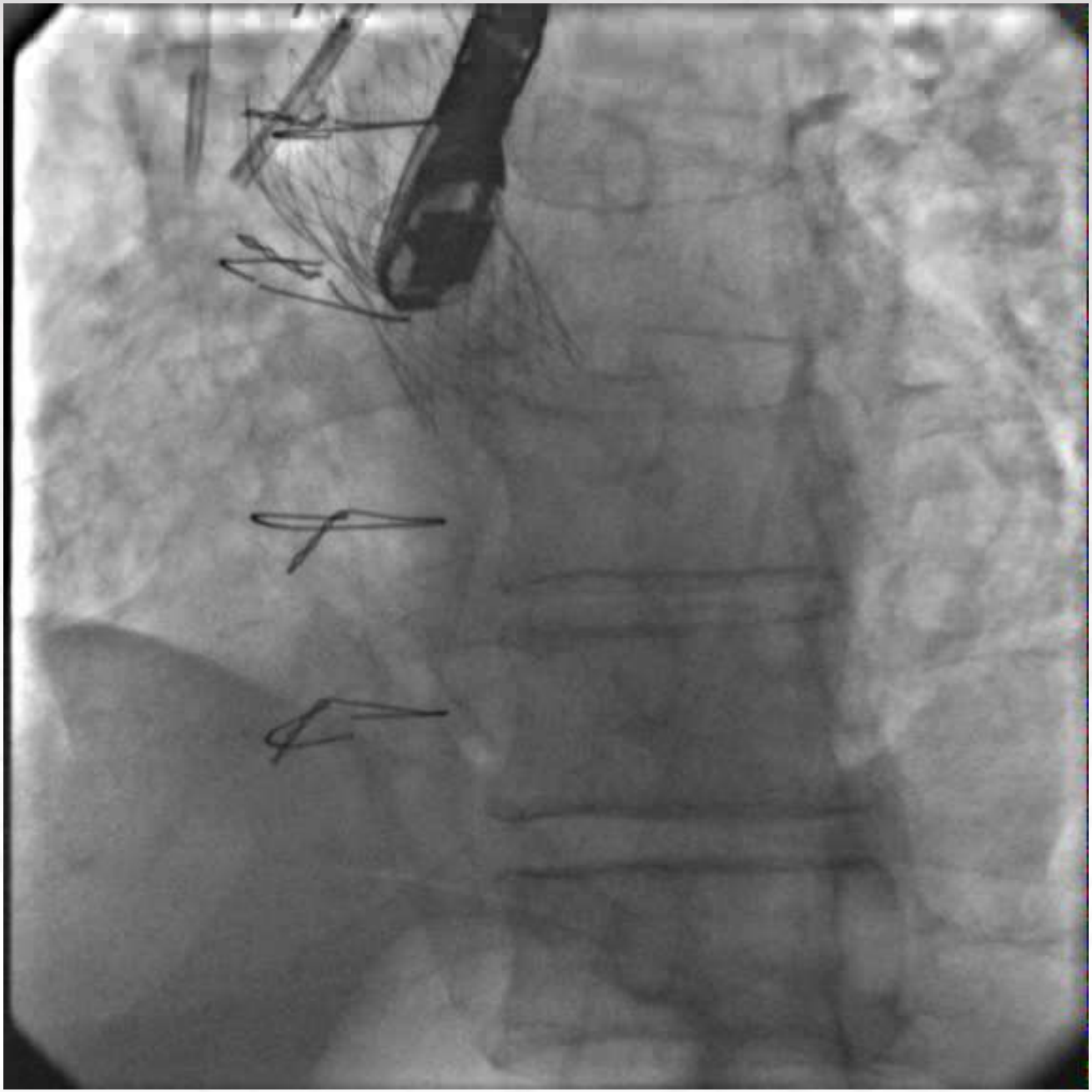
- ✓No AR, very stable patient
- ✓BP: 140/80 mmHg
- ✓No rythm disturbances

15 min later

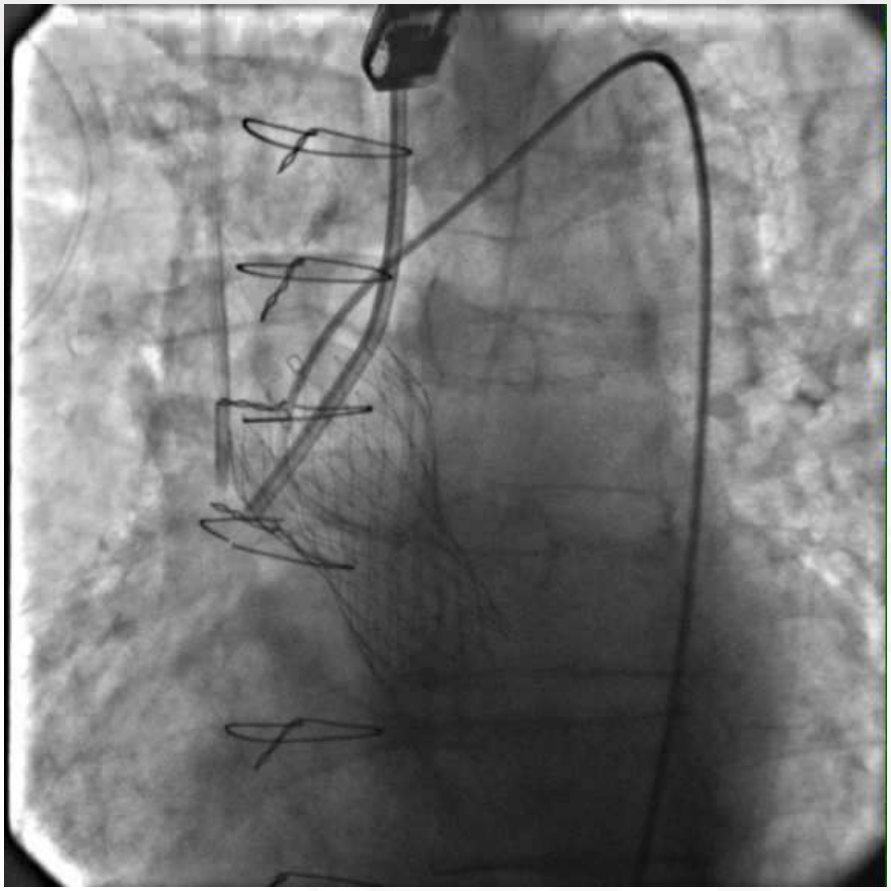
- ✓ Drop of BP from 140/80 to 70/30 mmHg
- ✓ Fall in LVEF
- ✓ Bradycardia < 35 bpm
- ✓ TPM started to pace at 70 bpm
- ✓ Start infusion of plasma expander
- ✓ Start administration of inotropes

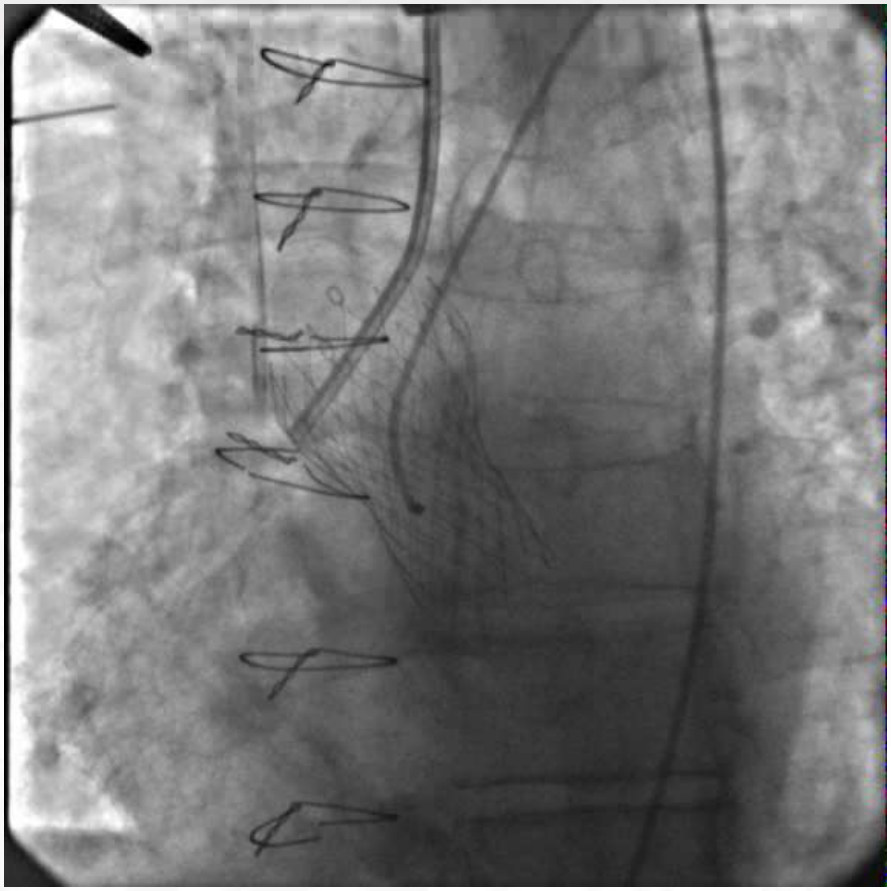
What could be the cause?

- ✓Cardiac tamponade
- ✓Annular rupture
- ✓Conduction disturbances
- ✓Valve pop-up
- ✓Coronary obstruction
- ✓Stroke
- ✓Bleeding

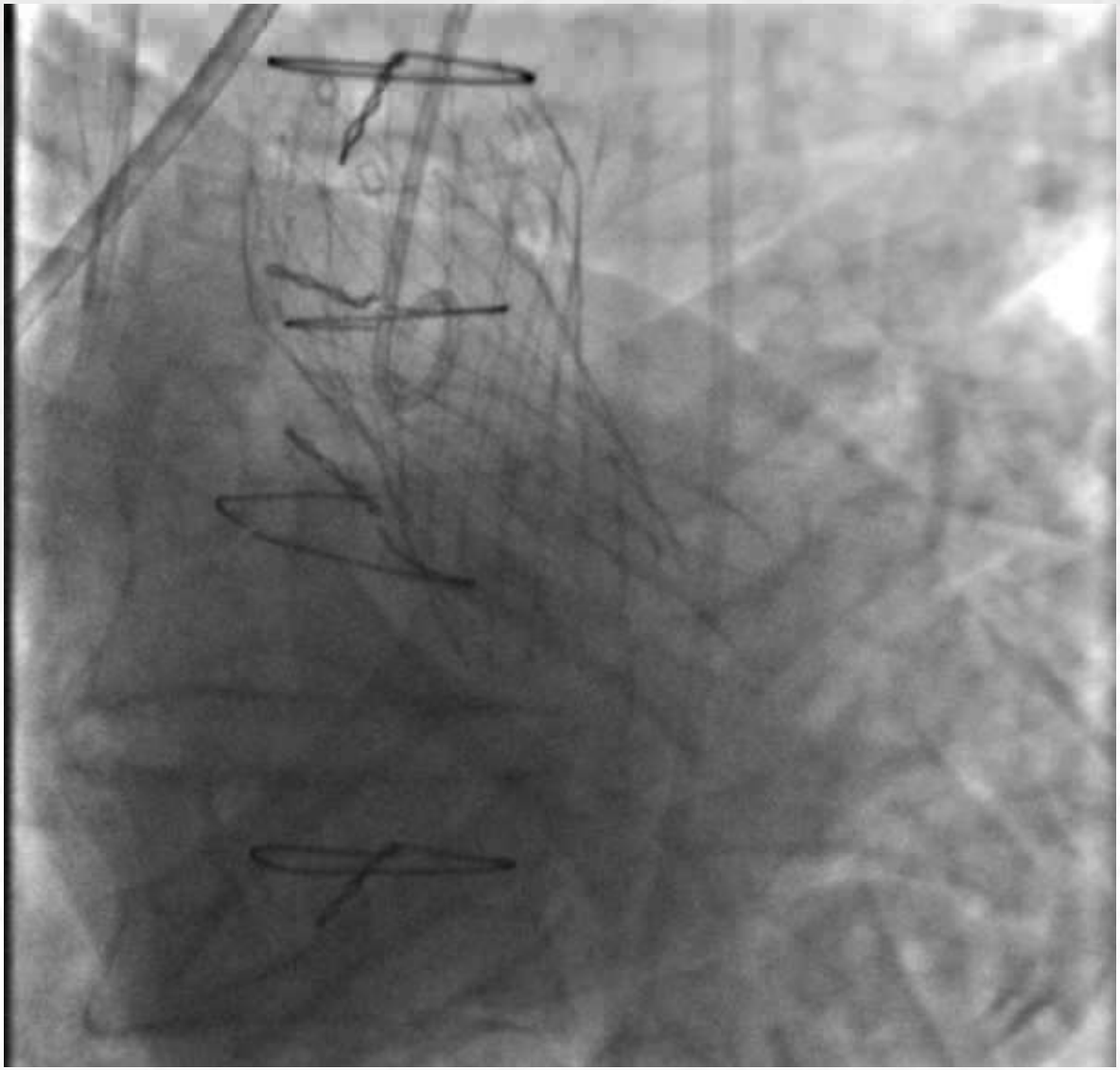


Coronary Angiogram





5 min later



Crossroad # 3

How should we treat?

- ✓LM wiring and stenting
- ✓Valve snaring
- ✓Balloon pop-up
- ✓Hemodynamic support (Impella ± ECMO)

Pop-up attempt

- ✓ Pop-up attempt with a Balloon 28/40 mm
- ✓ Cardiac arrest
- ✓ CPR started

Take Home Messages

- ✓ It is mandatory to have the precise information of the bioprosthetic valve (manufacturer, model and size) in ViV procedure
- ✓ Preoperative MSCT is mandatory to evaluate the risk of coronary obstruction
- ✓ **Consider late nitinol expansion for self-expandable device**
- ✓ Even after careful planning of the procedure, complications still may occur
- ✓ Pre-emptive coronary wiring and stent delivery could save life for very high risk case of coronary obstruction

Thank you for your kind attention