# **COMPLEX CHALLENGES DURING VALVE-IN-VALVE TAVI**:

OVERCOMING A SERIES OF PROCEDURAL COMPLICATIONS

# THE PATIENT

89-year-old male patient

Hypertension, dyslipidaemia, smoking-former

2013: AVR with Mitroflow aortic bioprosthesis no. 21

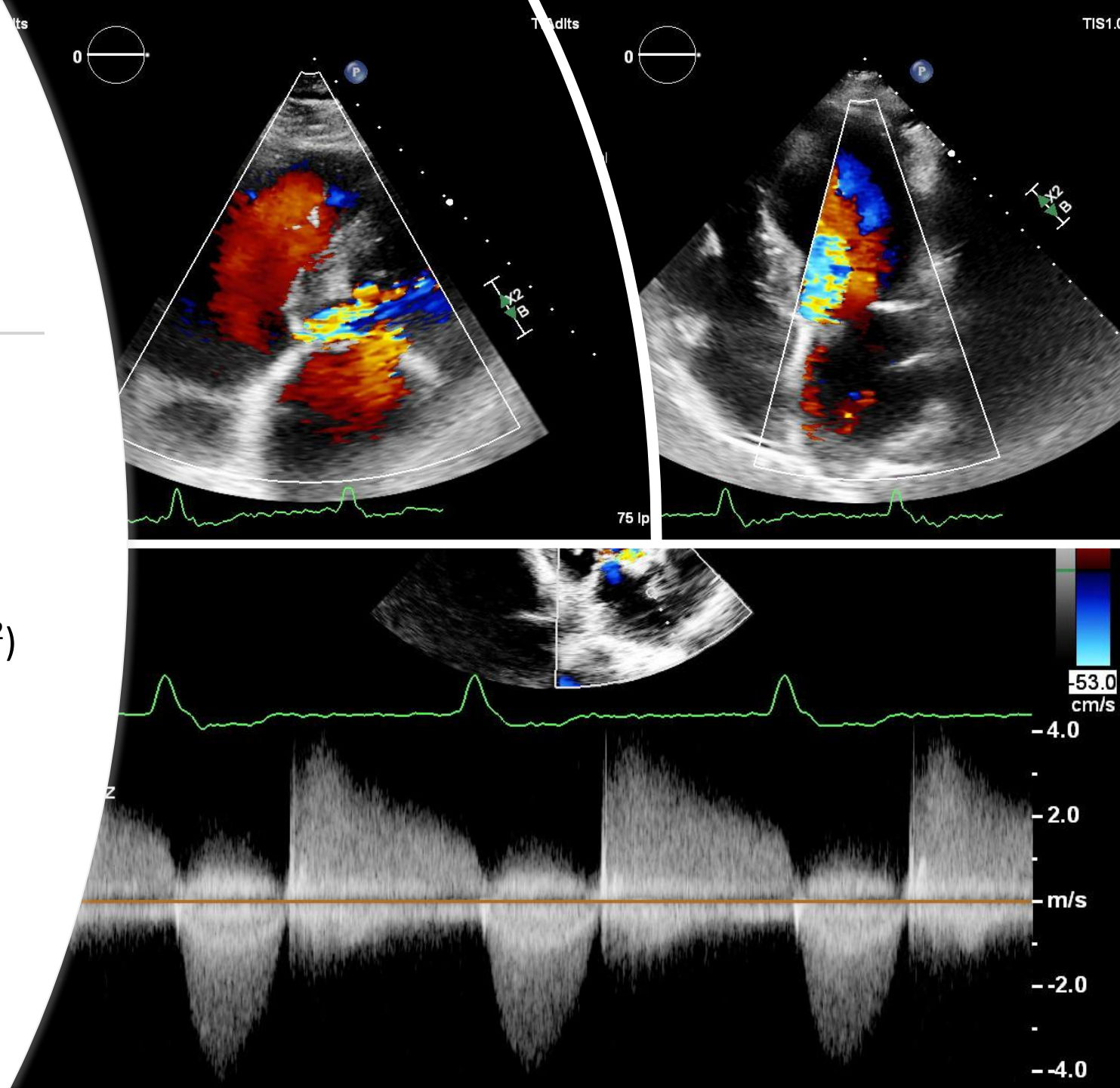
2022: Biotronik single-chamber PM implant for advanced AV block

…follow-up from 2022 for degeneration of the aortic bioprosthesis.

# ECHOCARDIOGRAM (2024)

- Dilated LV with moderate parietal hypertrophy
- Mildly reduced EF
- Aortic bioprosthesis with 1) high gradients (mean grad 33 mmHgM; AVAi 0.75 $cm^2/m^2$) and 2) severe intraprosthetic insufficiency:

- LV dilatation
- ITV arch 14.6 cm
- VC 0.7 cm
- THP 236 ms



# CT SCAN

- **Surgical Aortic Bioprosthesis with RC cusp flail**

- Prosthetic ring 280 $mm^2$
- Ring perimeter 59 mm
- True ID 17 mm

- LMCA height: 7 mm
- LMCA VTC: 2.7 mm
- RCA height: 6 mm
- RCA VTC: 2.2 mm

- Valsalva sinuses: 25x28x28 mm

**PROSTHETIC RING IN THE RANGE OF A 23 MM AORTIC PROSTHESIS FOR A TAVI VALVE-IN-VALVE**

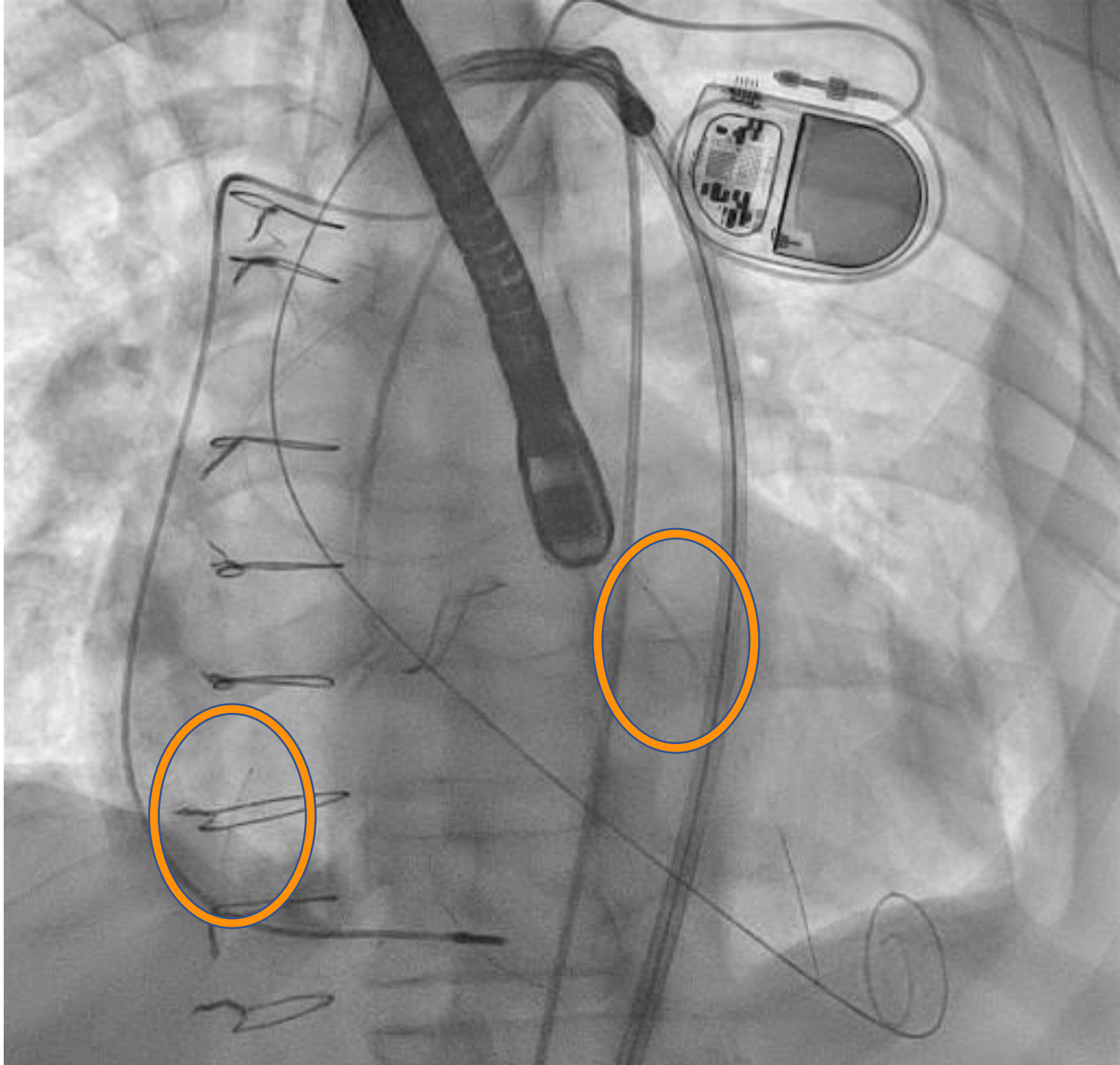
**HIGH RISK OF OCCLUSION OF BOTH CORONARIES**

# CORONAROGRAPHY

# Low coronary height

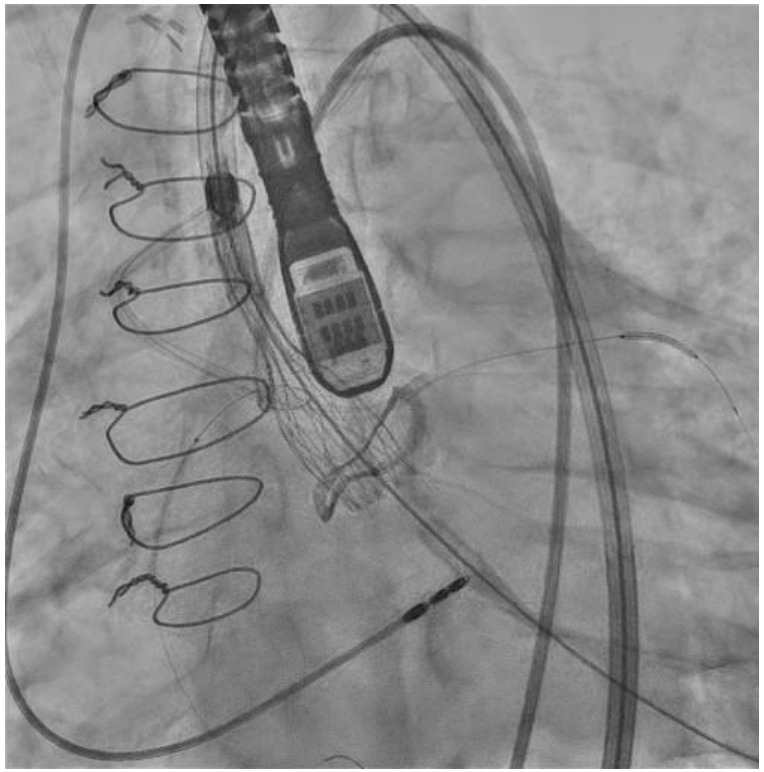
- LCA □ JL4 6F □ Coronary protection with wire and DES (4/24 mm)

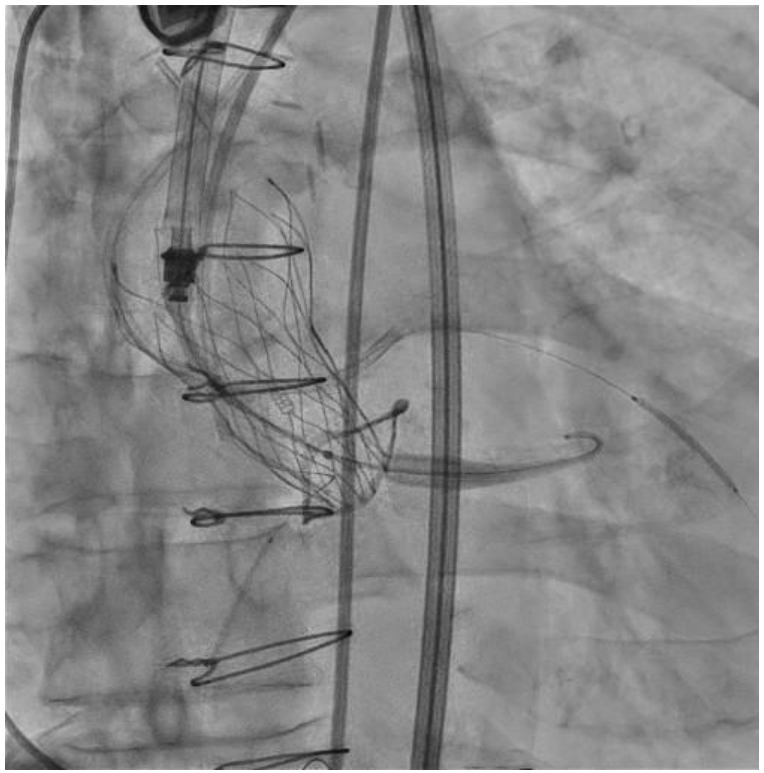
- RCA □ JR4 6F □ Coronary protection with wire and DES (3.5/24)

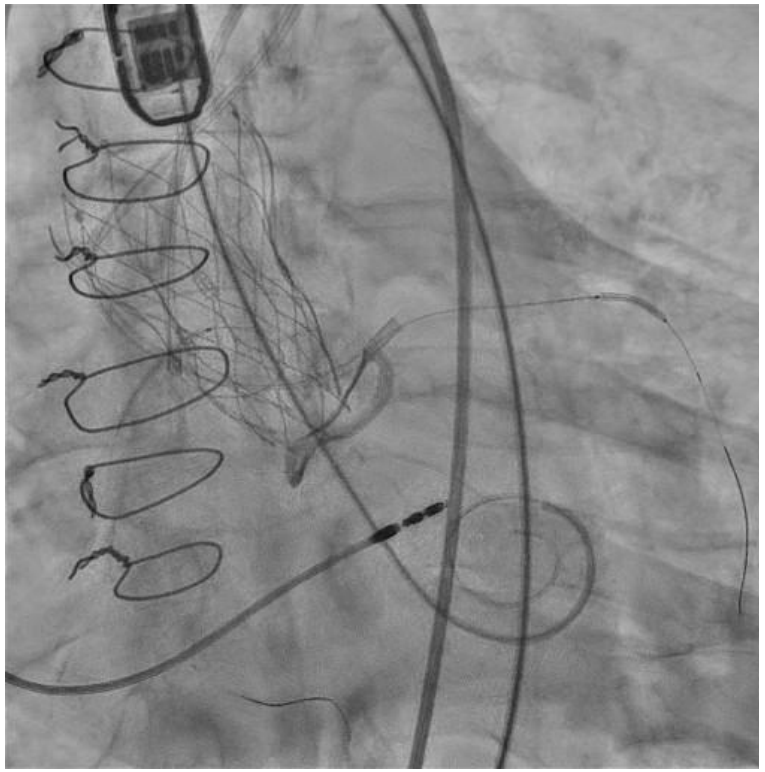


## VALVE-IN-VALVE TAVI
## 23 mm SEV

**FIRST COMPLICATION:**
**TAVI EMBOLISATION WITHOUT COMPROMISED CORONARY FLOW**

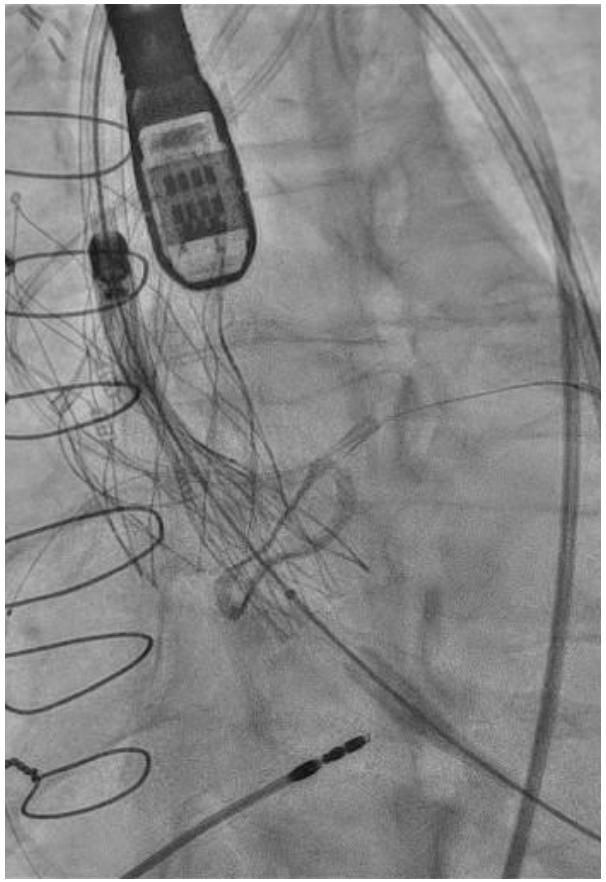


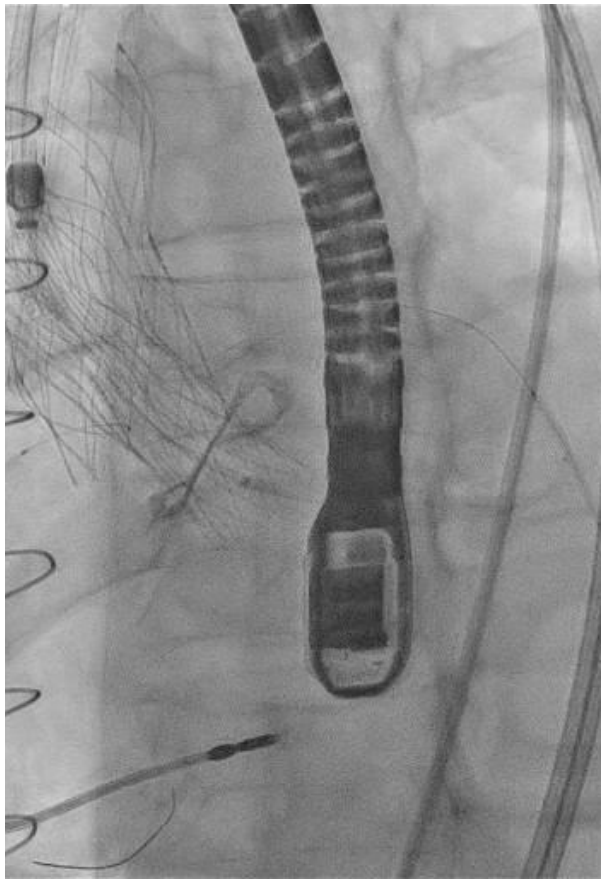




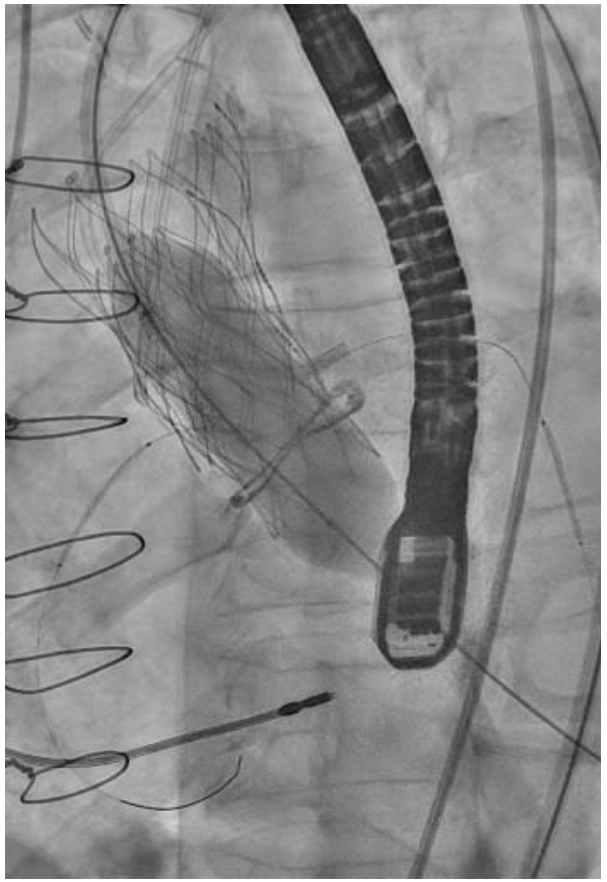
## HOW TO SOLVE?

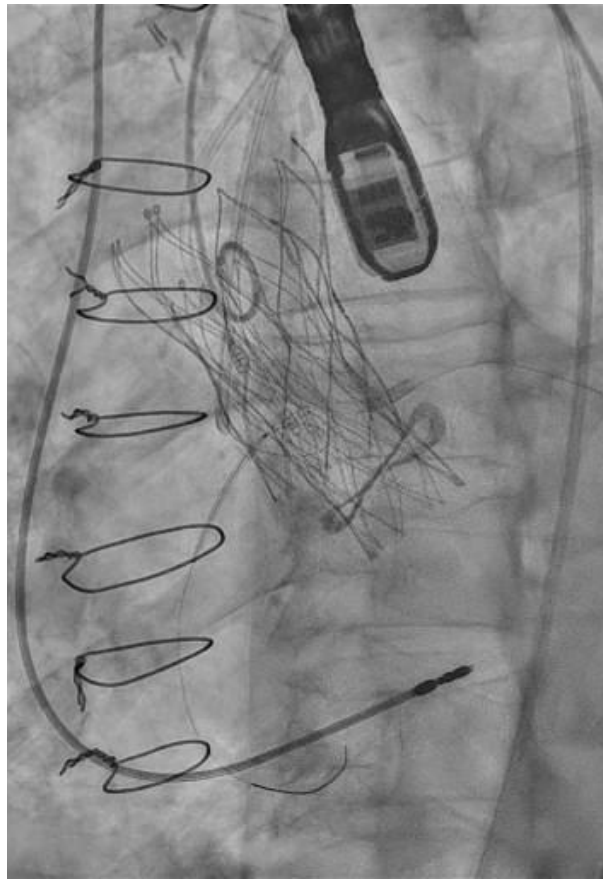
## IMPLANTATION OF ANOTHER 23-mm SEV (DEEPER)





UNDER-EXPANSION





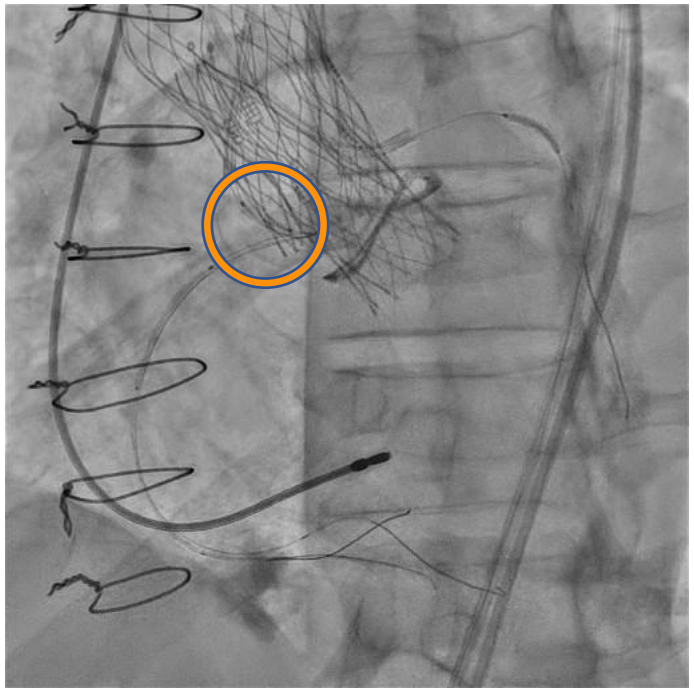
BVFracturing with a 20-mm NC balloon

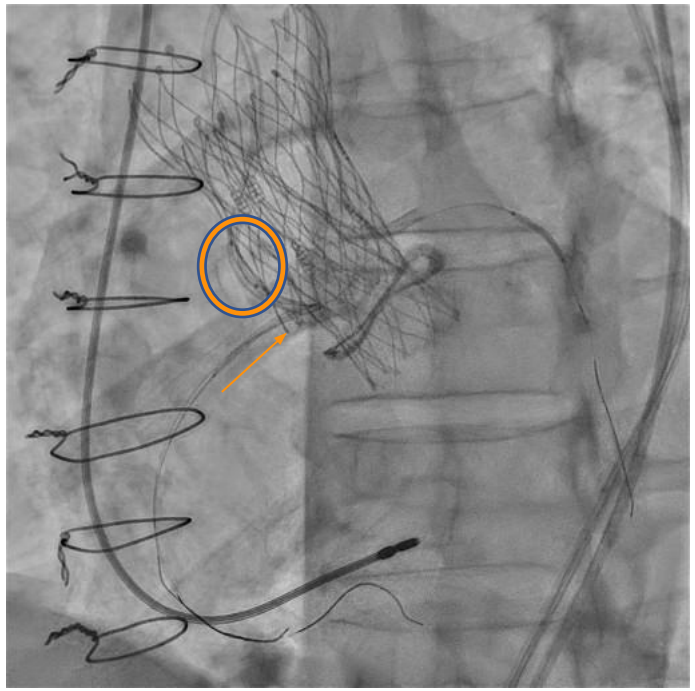
**SECOND COMPLICATION:**
**INABILITY TO WITHDRAW RCA STENT TROUGH GUIDING CATHETER (Resistance caused by contact with TAVI)**

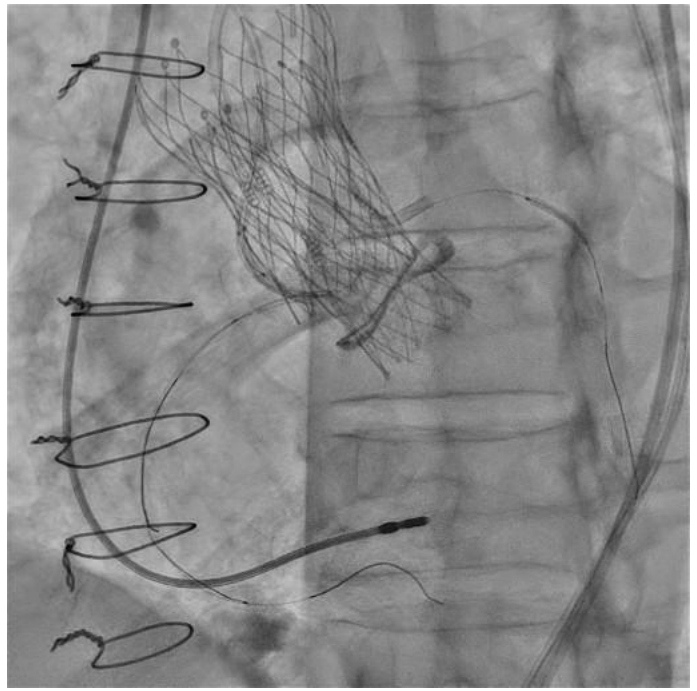
How to solve?

1) Advance a second coronary wire + microcatheter: ineffective.

2) Inflate a 2.25/13 mm NC balloon to separate TAVI from STJ: effective.

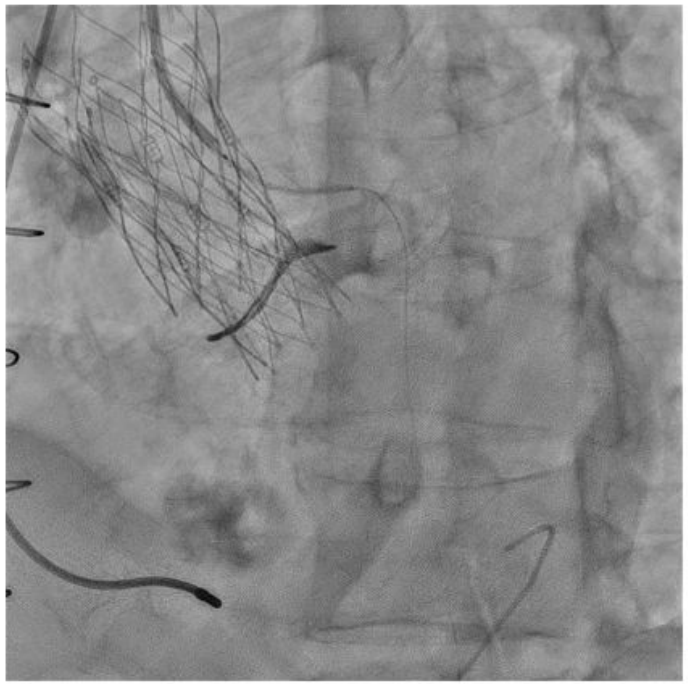


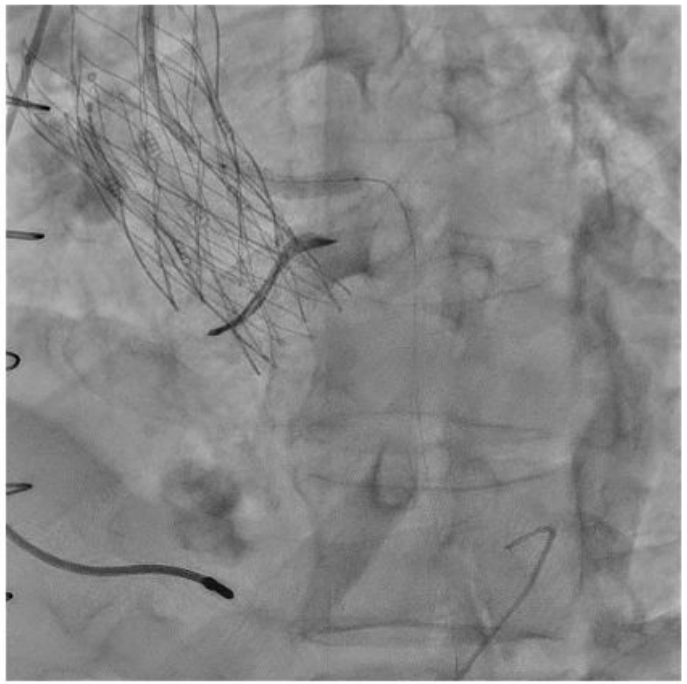




**THIRD COMPLICATION:**
**LEFT CORONARY SINUS SEQUESTRATION**

HOW TO SOLVE?





**CHIMNEY STENTING TECHNIQUE WITH DES 4.0/24 mm**

# FINAL RESULT