Complication coming from Switzerland

N’en fais pas une montagne

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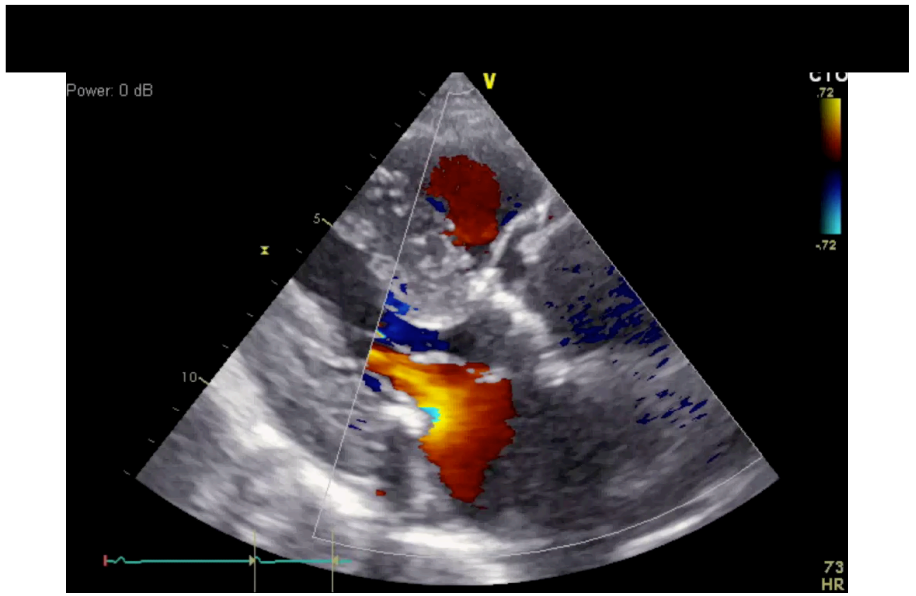
Clinical Description

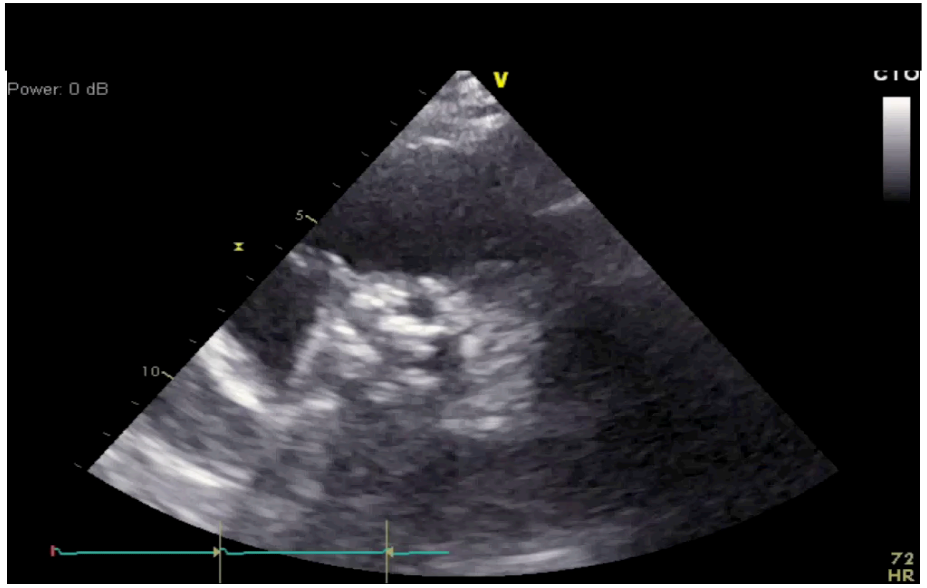
- 93/F

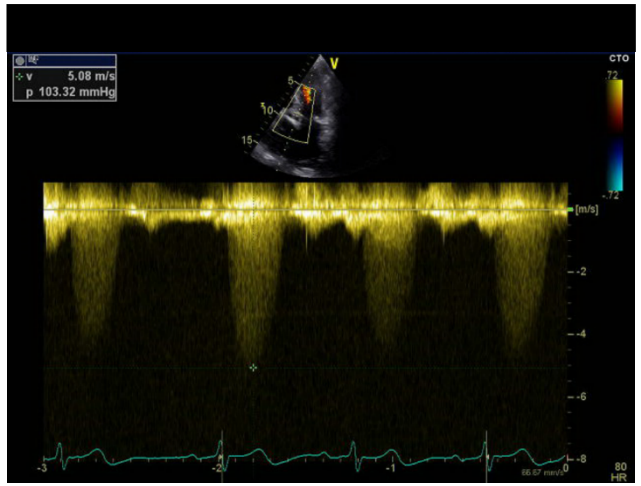
- HT
- Hypercholestrolaemia
- Normochromic, normocytic anaemia
- History colonic cancer in the past

Echocardiogram

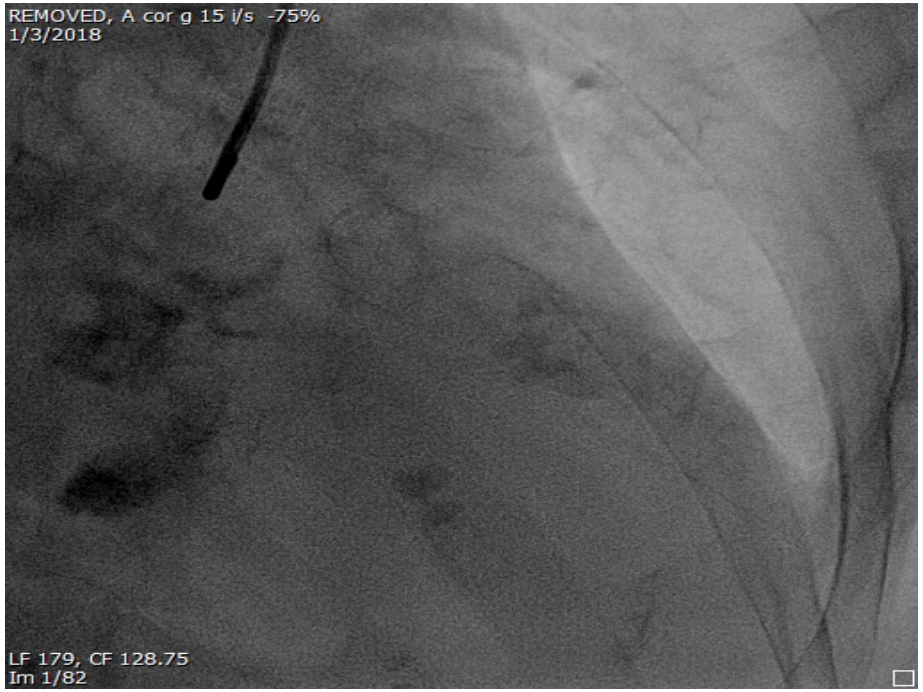
- EF:68%, left ventricular hypertrophy
- Bicuspid Aortic valve with severe calcified aortic stenosis (Normal flow, high gradient)
- Mean gradient 100mmHg, AVA 0.6cm2
- Mild mitral/tricuspid regurgitation
- No regional wall abnormality

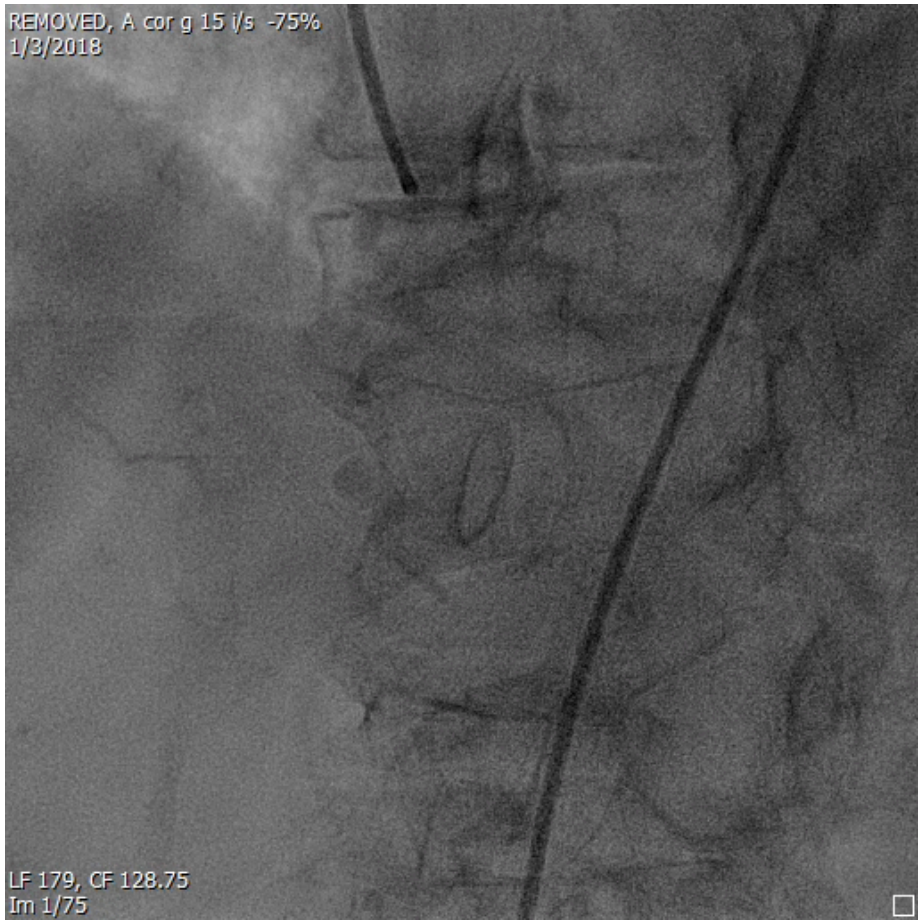




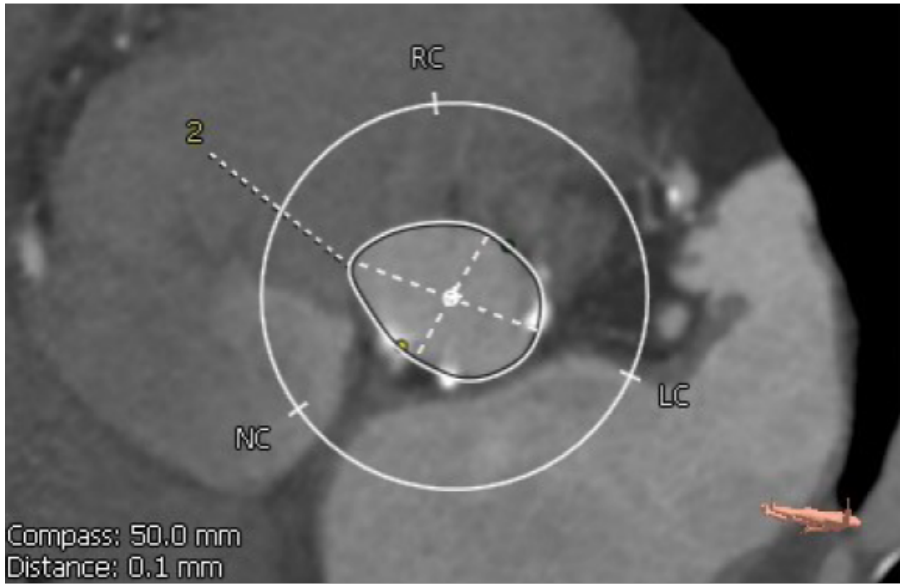


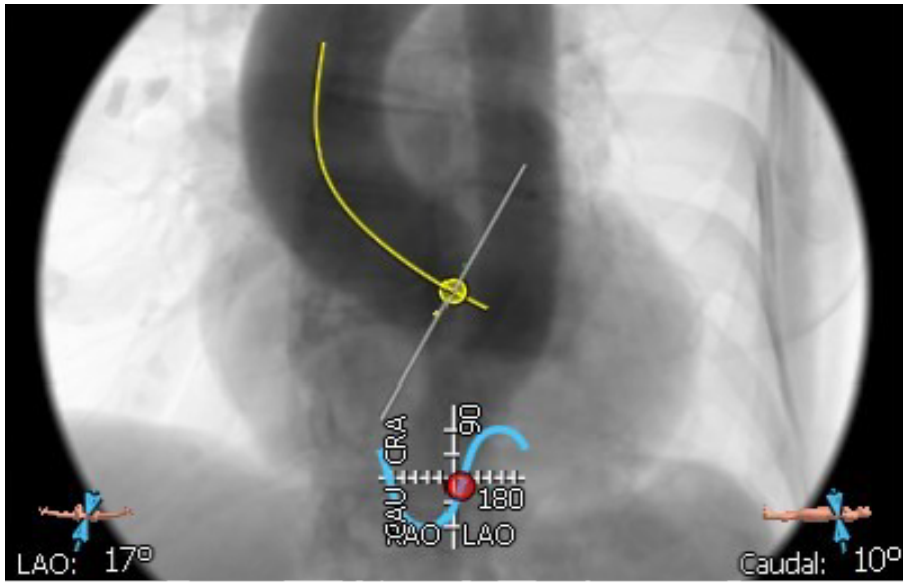
Coronary angiogram





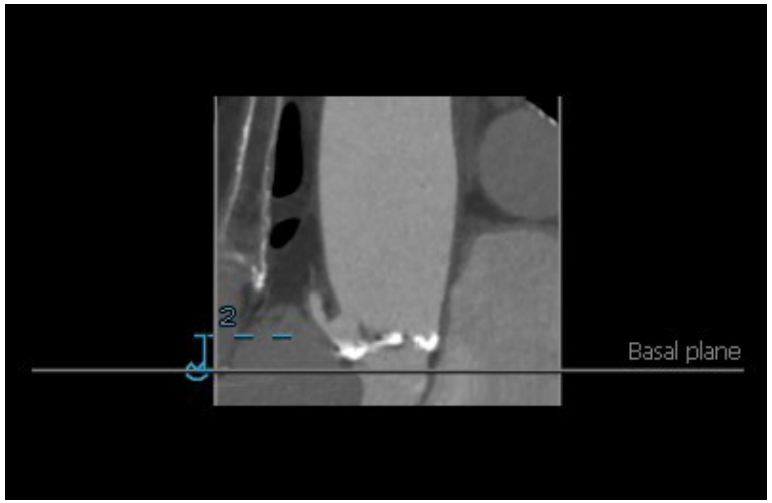
Pre-TAVI MDCT

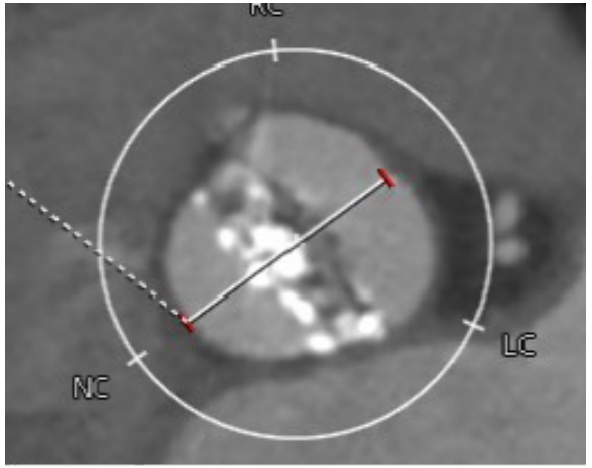




Aortic annulus			
Perimeter	70.7mm	Min Ø	19.2mm
Perimeter Derived Ø	22.5mm	Max Ø	26.0mm
Area	378.8mm2	Average Ø	22.6mm
Area Derived Ø	22.0mm	Eccentricity	0.26

Pre-TAVI MDCT



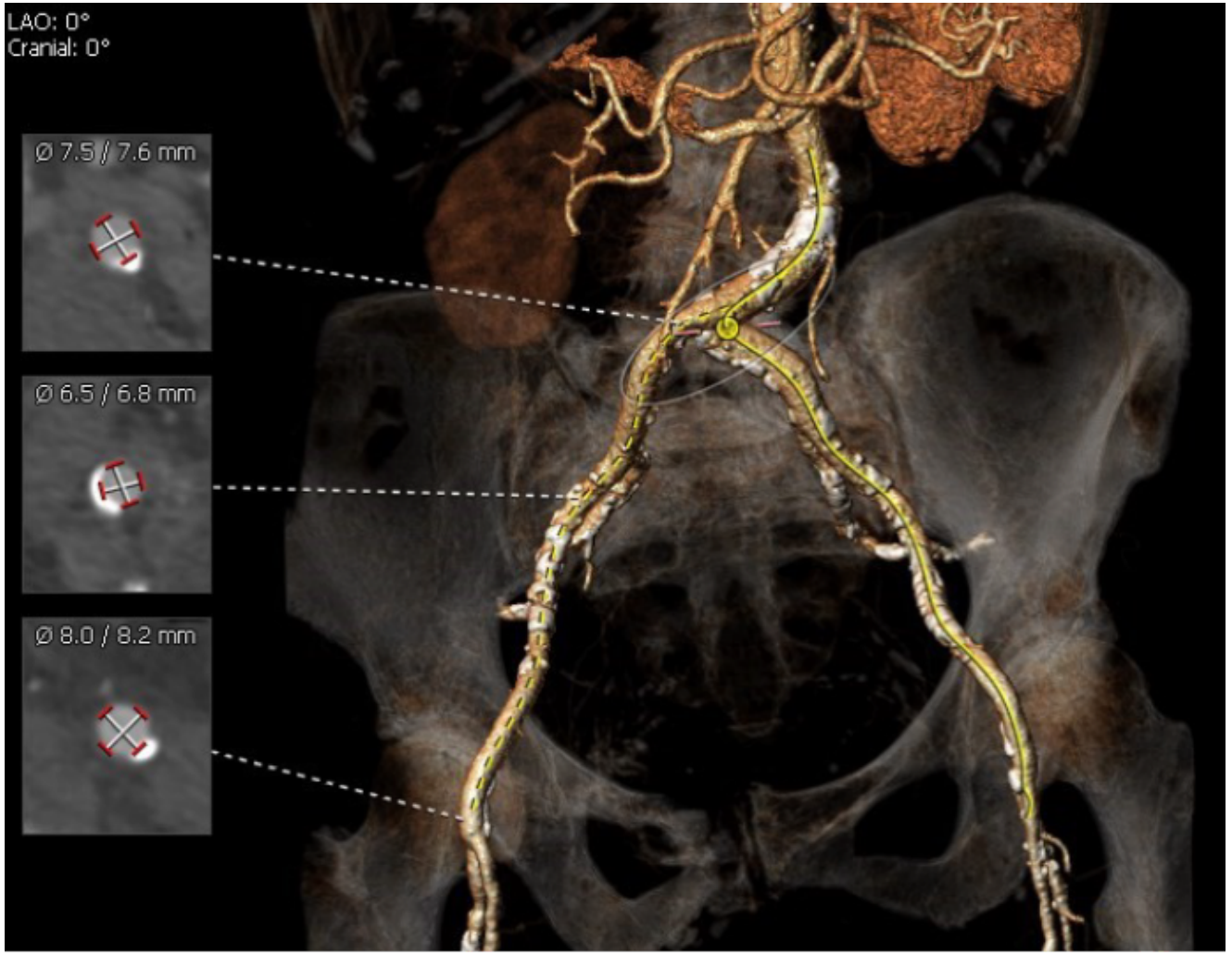


Average Ascending Aorta Ø
37.3mm

Right Coronary Artery Height
10.5mm

SOVØ
31.4mm

Pre-TAVI MDCT

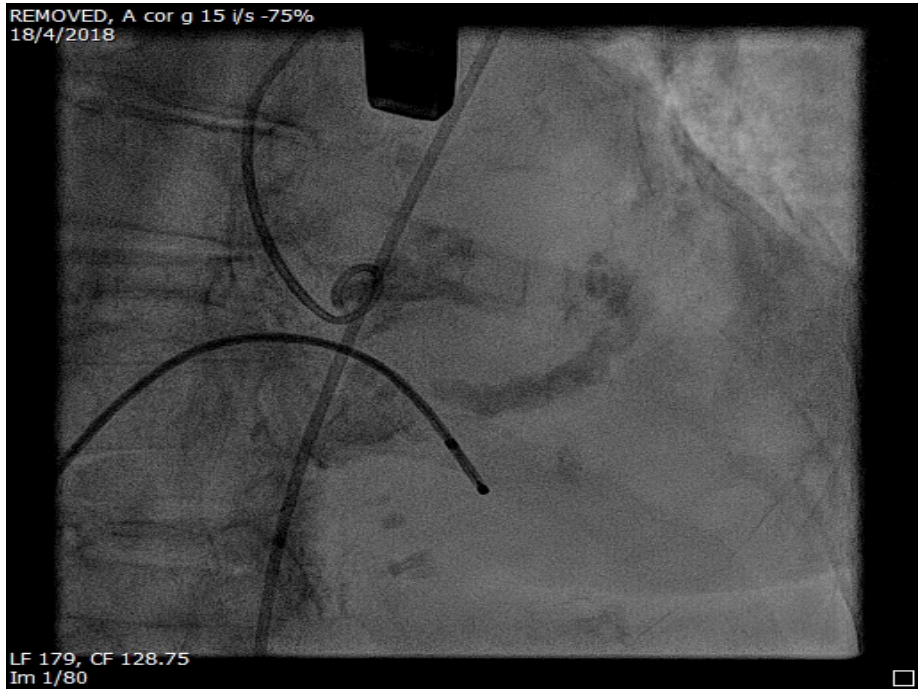


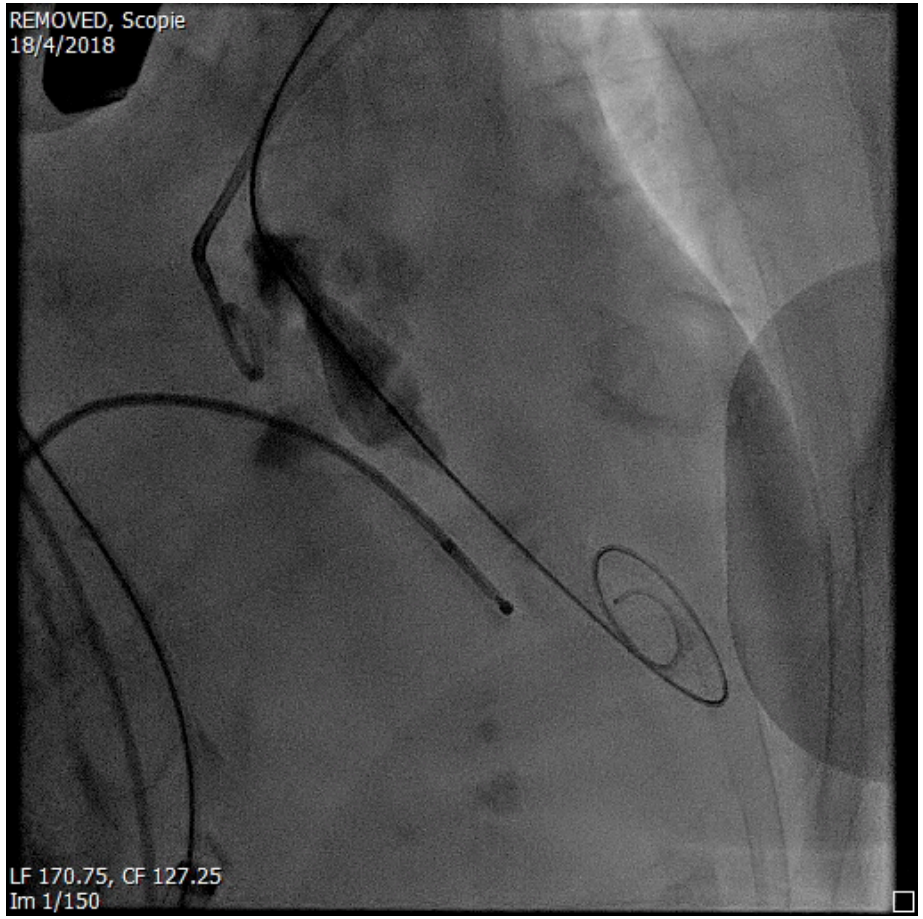
Our Plan of management

- Bicuspid aortic valve with prominent ascending aorta
- Aortic valve calcification, low right coronary artery

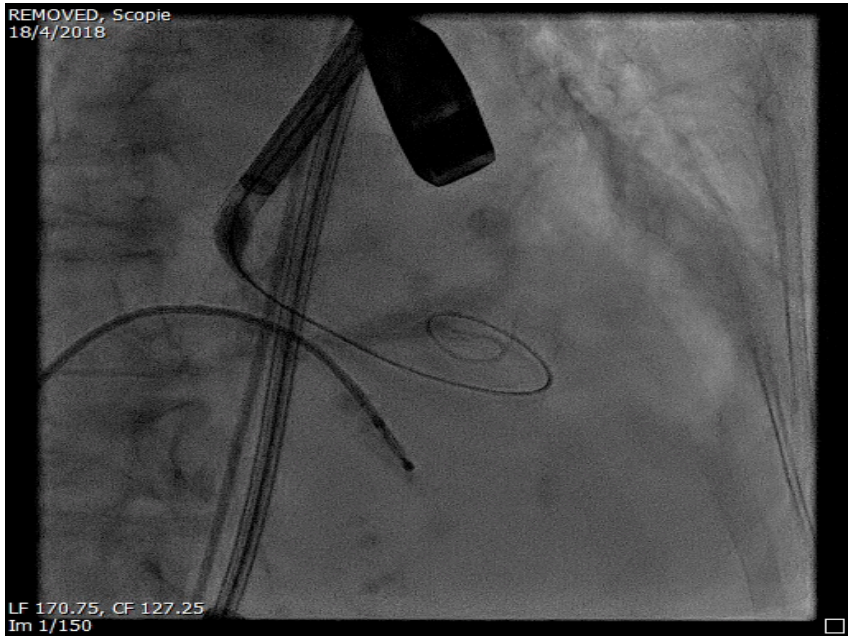
- Plan: TAVI with Evolut Pro 26. Right femoral access

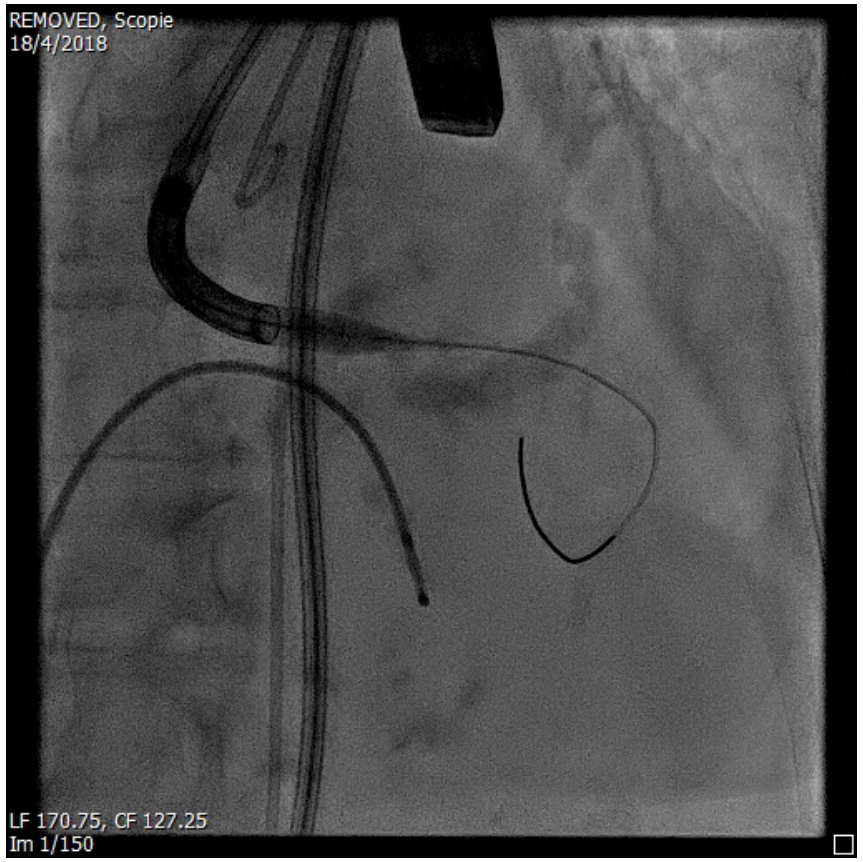
Evolut Pro 26



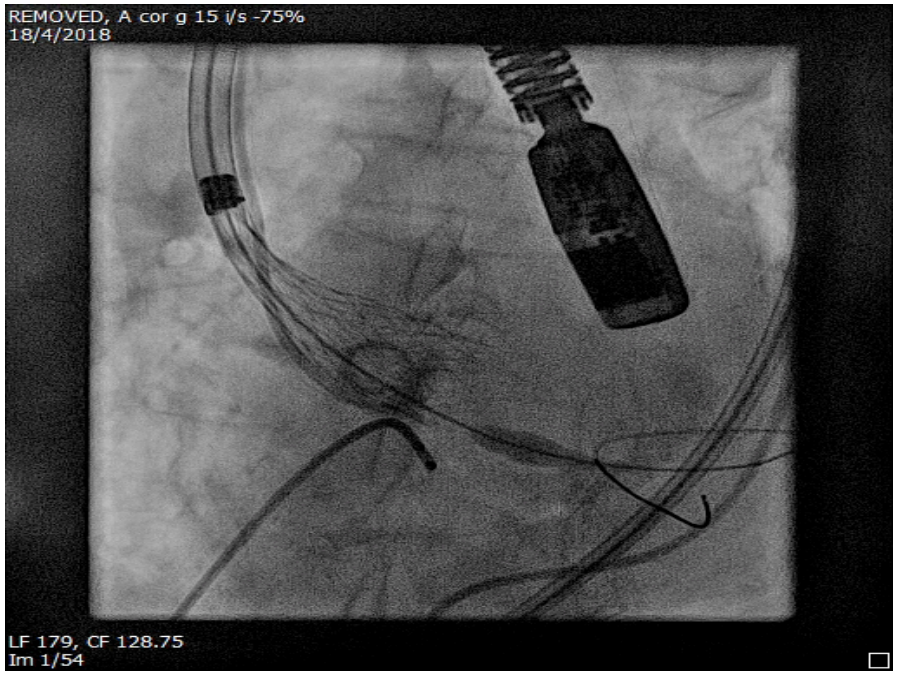


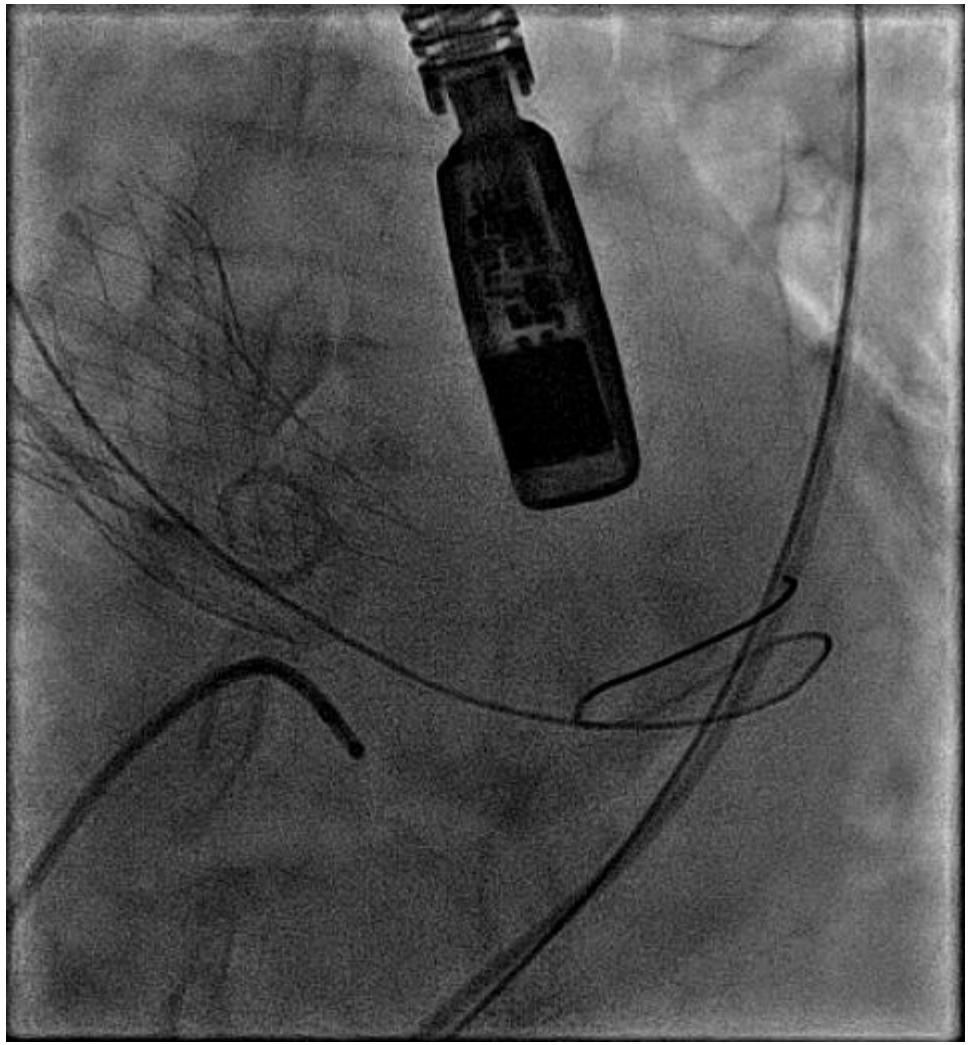
Deployment of Evolut Valve



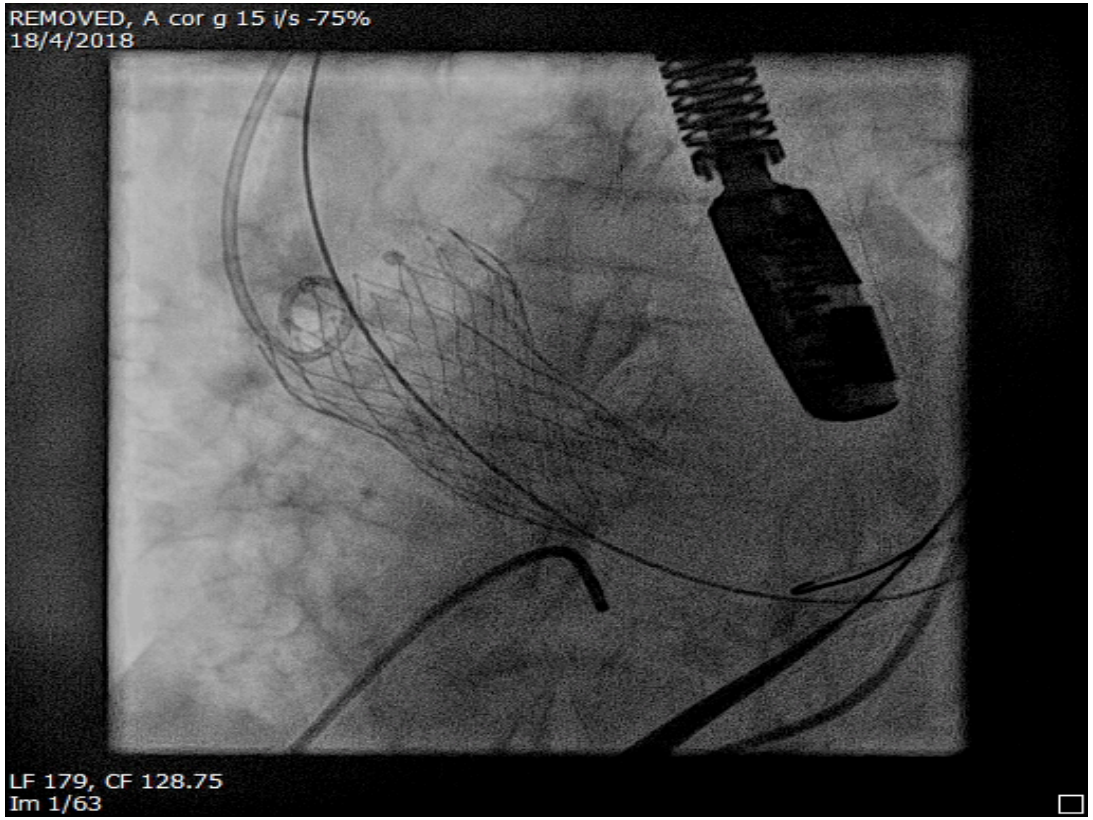


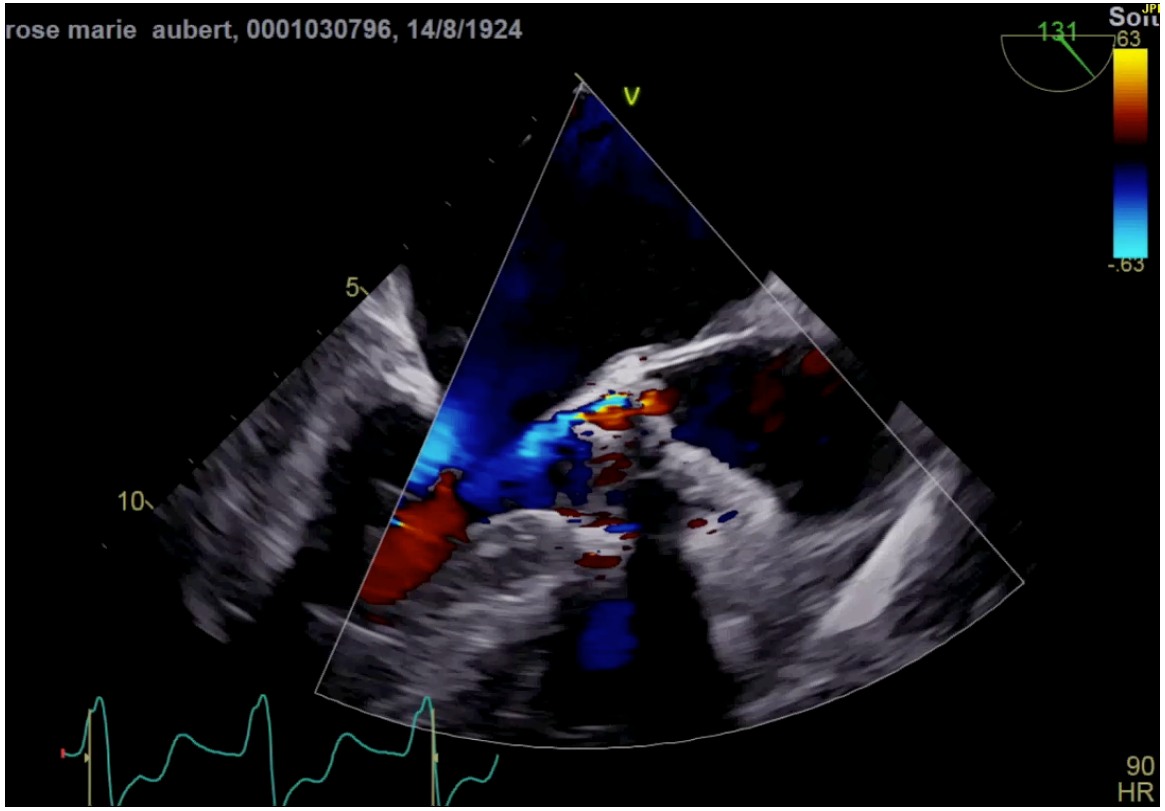
Deployment of Evolut Pro





Paravalvular leakage after deployment of Evolut Pro





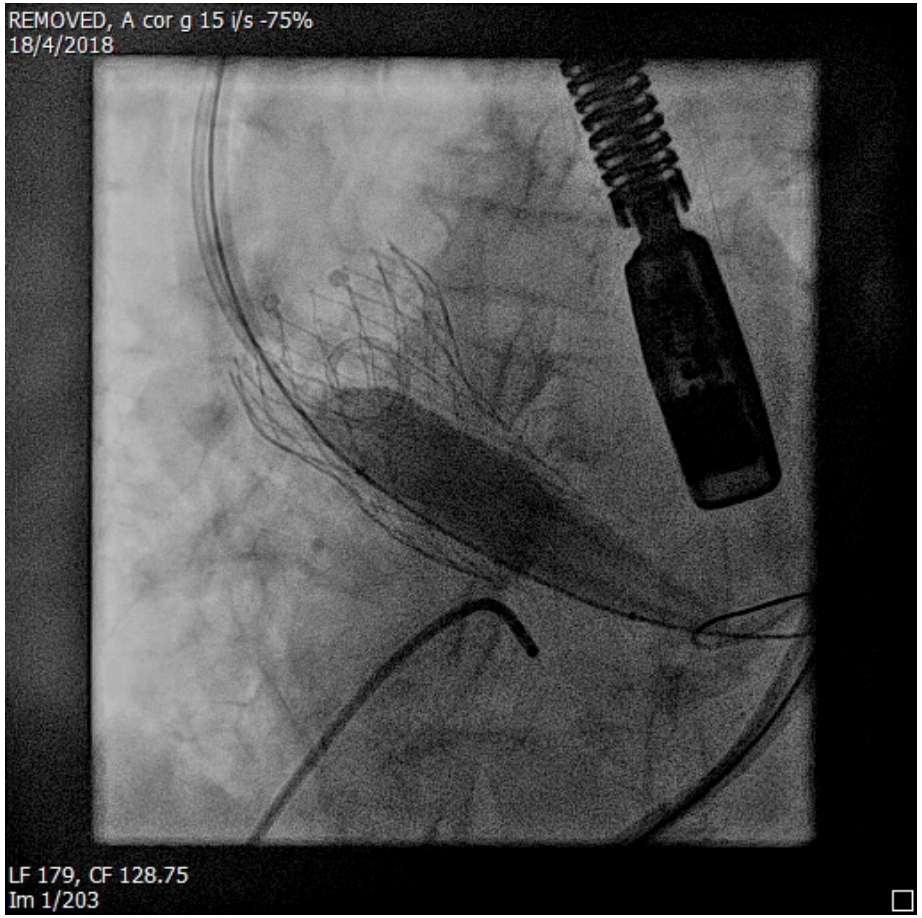
Next Step ?

- Options

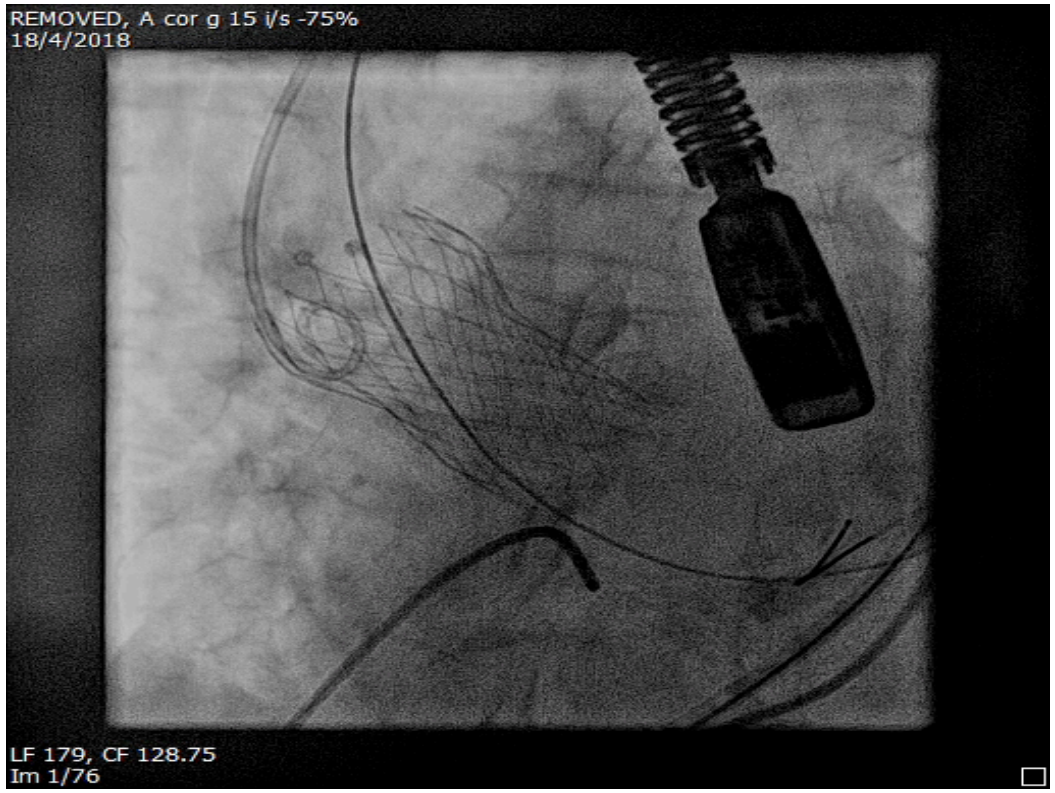
1. Conservative management
2. Balloon dilatation
3. Second valve
4. Others ?

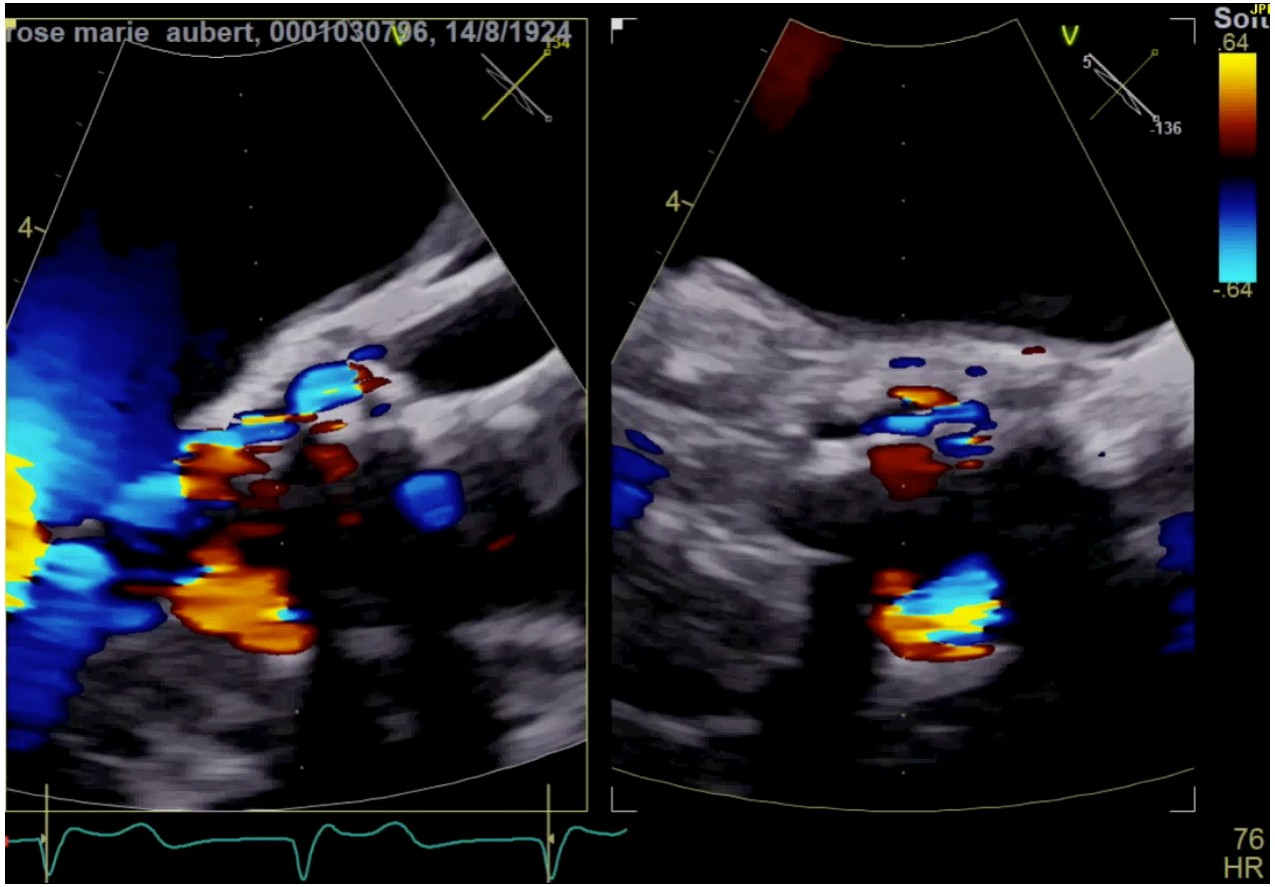
Balloon dilatation

True dilatation (LOMA)
24/45 mm - BARD™



Persistent significant paravalvular leakage



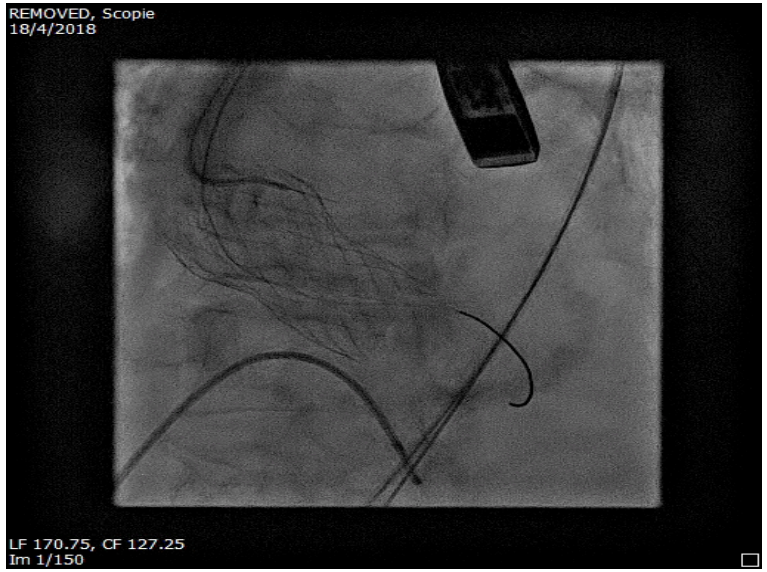


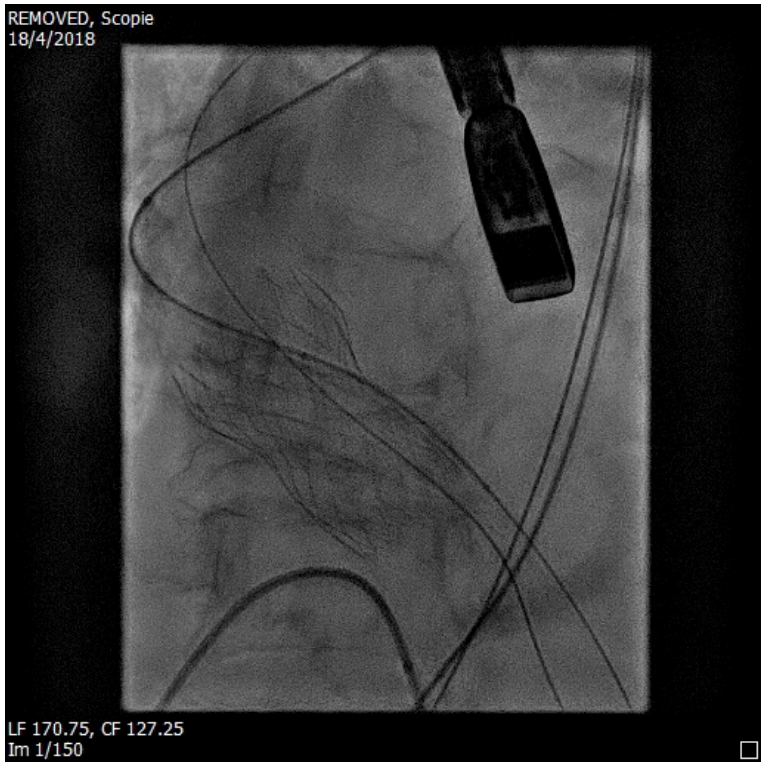
What will you do ?

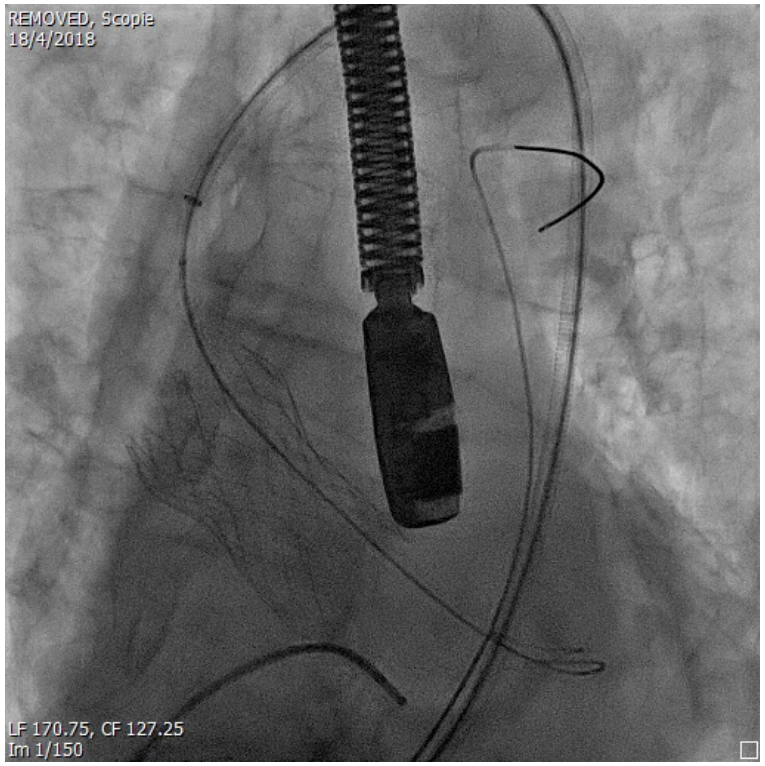
- Options

1. Conservative management
2. Further balloon dilatation
3. Second valve deployment
4. Paravalvular plug
5. Others

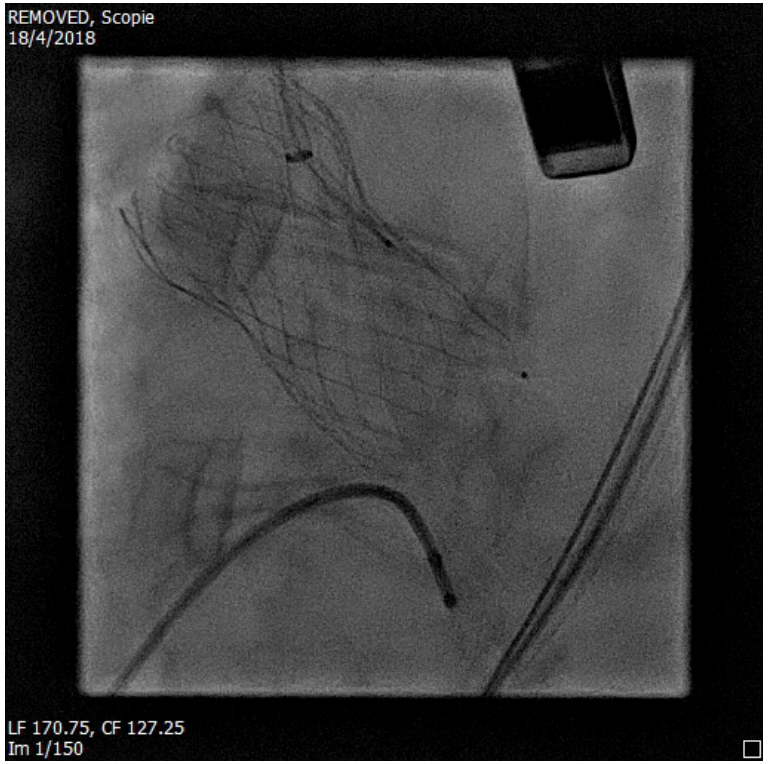
Paravalvular Plug



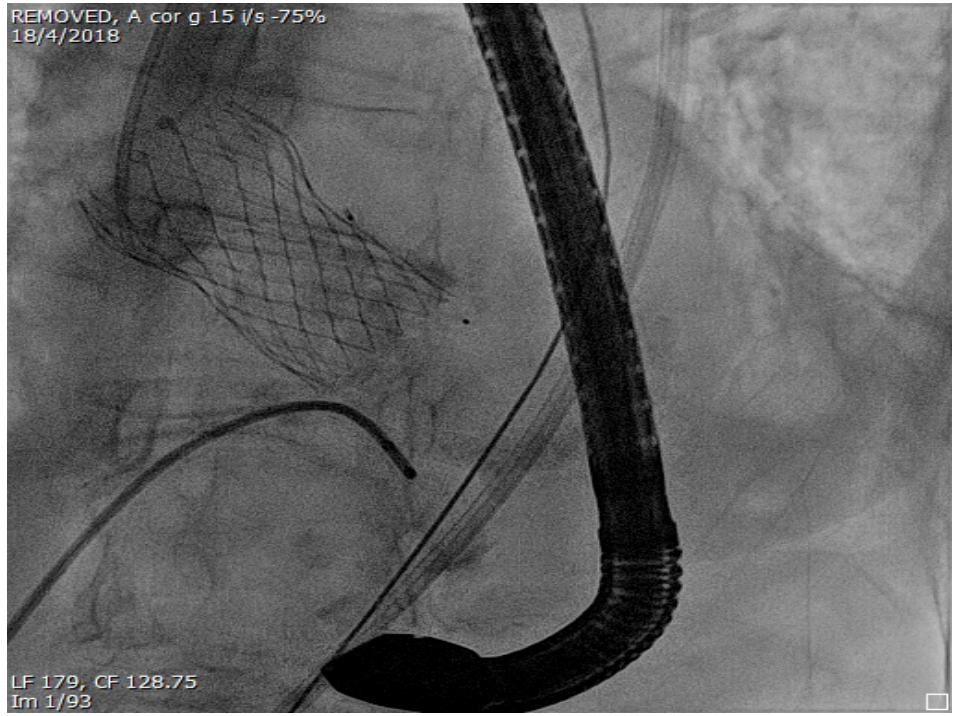


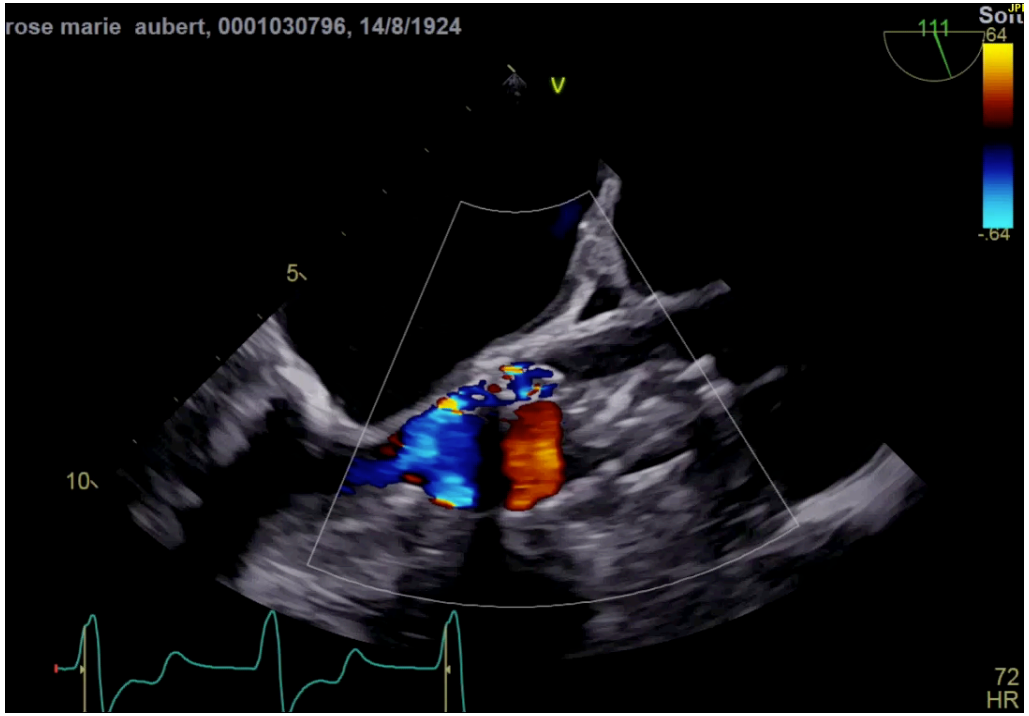


Paravalvular plug (Amplatzer Vascular Plug 4 – 8 mm)



Result after Paravalvular plug





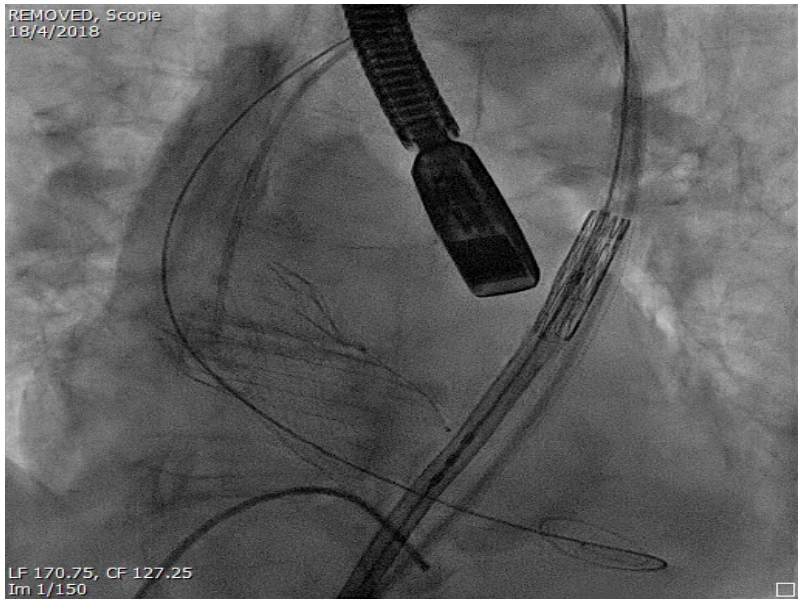
Diastolic pressure 30-40mmHg

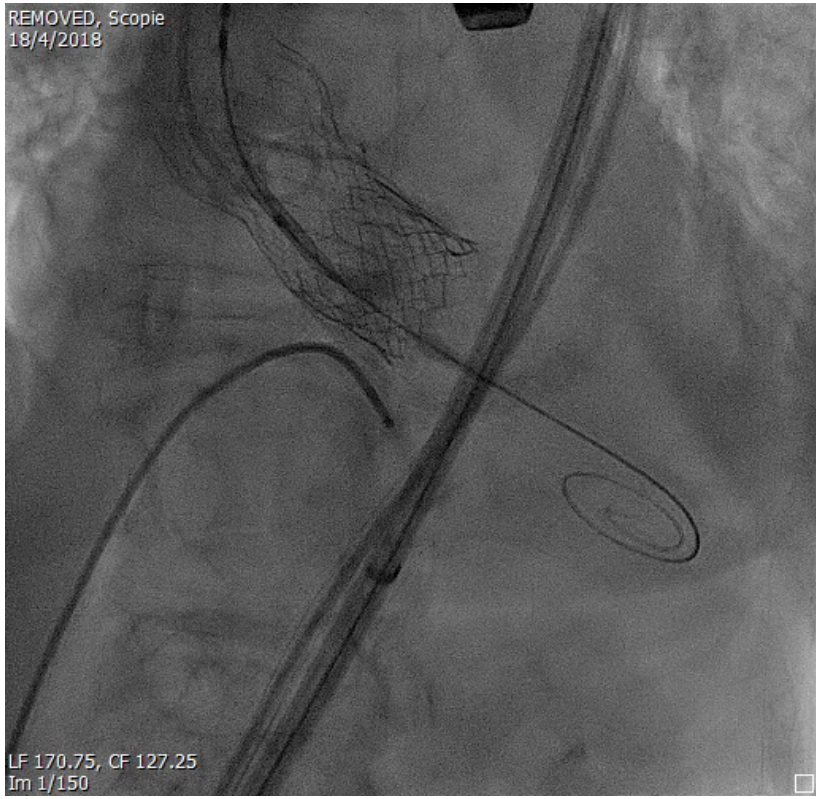
Further action ?

- Options:

1. Too much for patient and doctors, finish the job
2. Aim for better result, Second valve ???
3. Further plug ?
4. Others

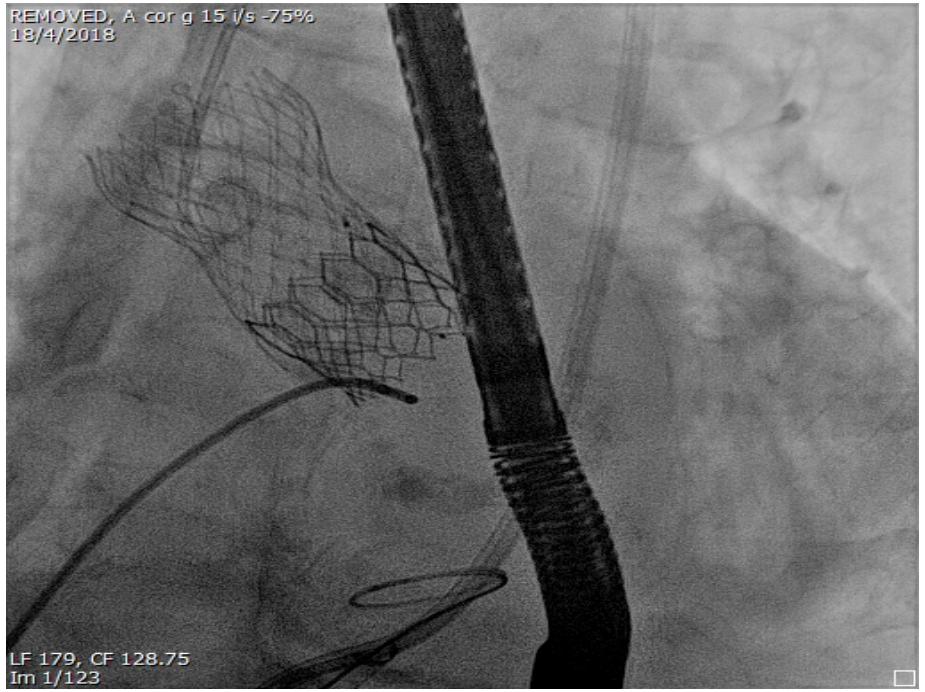
Second valve



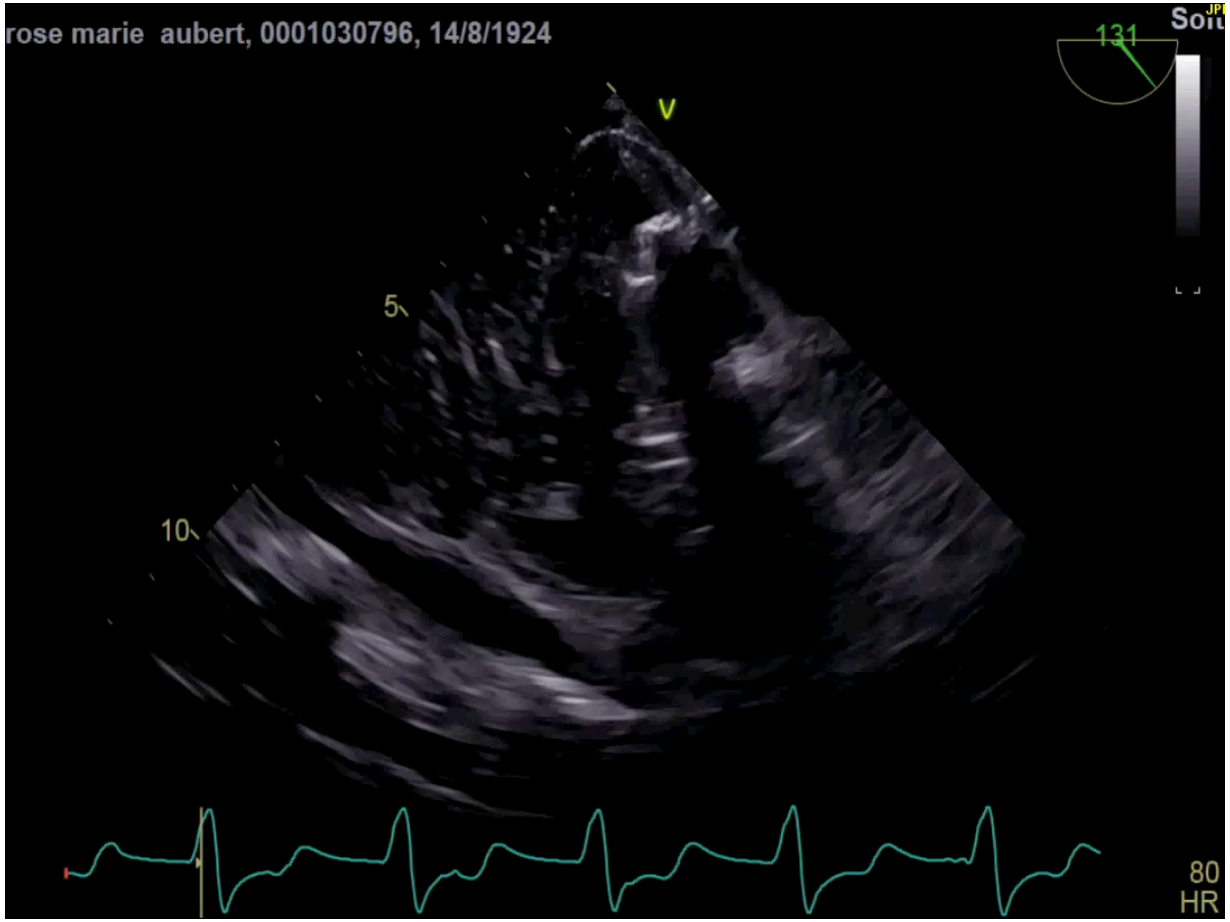


Edward Sapien 26mm

Result



However ……



Develop hypotension

Bradycardia

→PEA

What we can do……

Pericardiocentesis

Autotransfusion

Resuscitation

Call CTS surgeon….

….. Deteriorate rapidly and patient passed away

Annular rupture during TAVI procedure

- Annular rupture occurs in about 1% of all TAVR procedures

- Anatomic characteristics that may predispose annular rupture
  1. Small aortic valve annulus (<20 mm)
  2. Large amount of calcification
     1. Aortic valve leaflets
     2. Annulus (especially circular calcification),
     3. LVOT,
  3. Global LV hypertrophy in elderly, mostly female patients (with decreased LV compliance and fragile tissue)

Prevention

- Searching for predictive factor(s)
- Consider modification of the therapeutic strategy
  - Choice of the size of transcatheter valve diameter
  - Consider incomplete inflation of the balloon
  - Modify implantation plan (Higher valve positioning)
  - Avoid performing valve reballooning