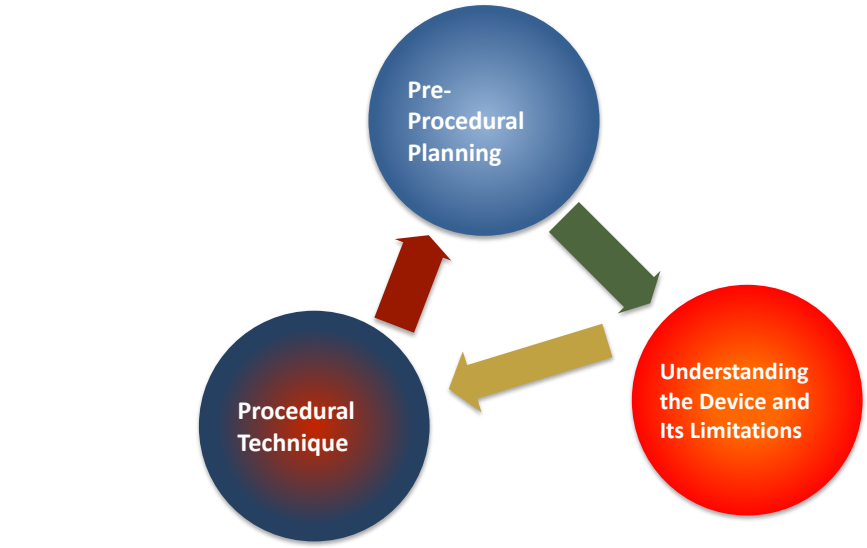
AORTIC REGURGITATION MANAGMENT POST TAVR

YASSER SADEK,MD
NHI-HELWAN UNIVERSITY

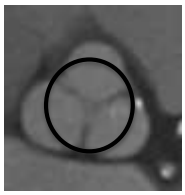
SUCCESSFUL TAVR



Current Generation Devices

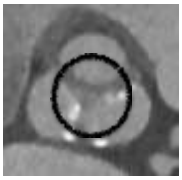
Focus on procedure aspect

valve sizing



oversizing

undersizing



Annulus rupture

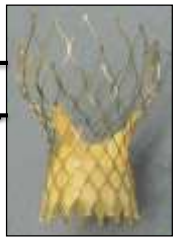
Coronary occlusion

Pace-maker requirement

Valve Embolization

Para-valvular leak Grade ≥2

Valve Dislodgment (bicuspid)



Need for additional valve

↓

Procedure success

3

Current Generation Devices

Focus on procedure aspect

Inaccurate valve position / Device weakness

Too High

Too Low

Coronary occlusion

Pace-maker requirement

Valve Embolization

Para-valvular leak Grade ≥2

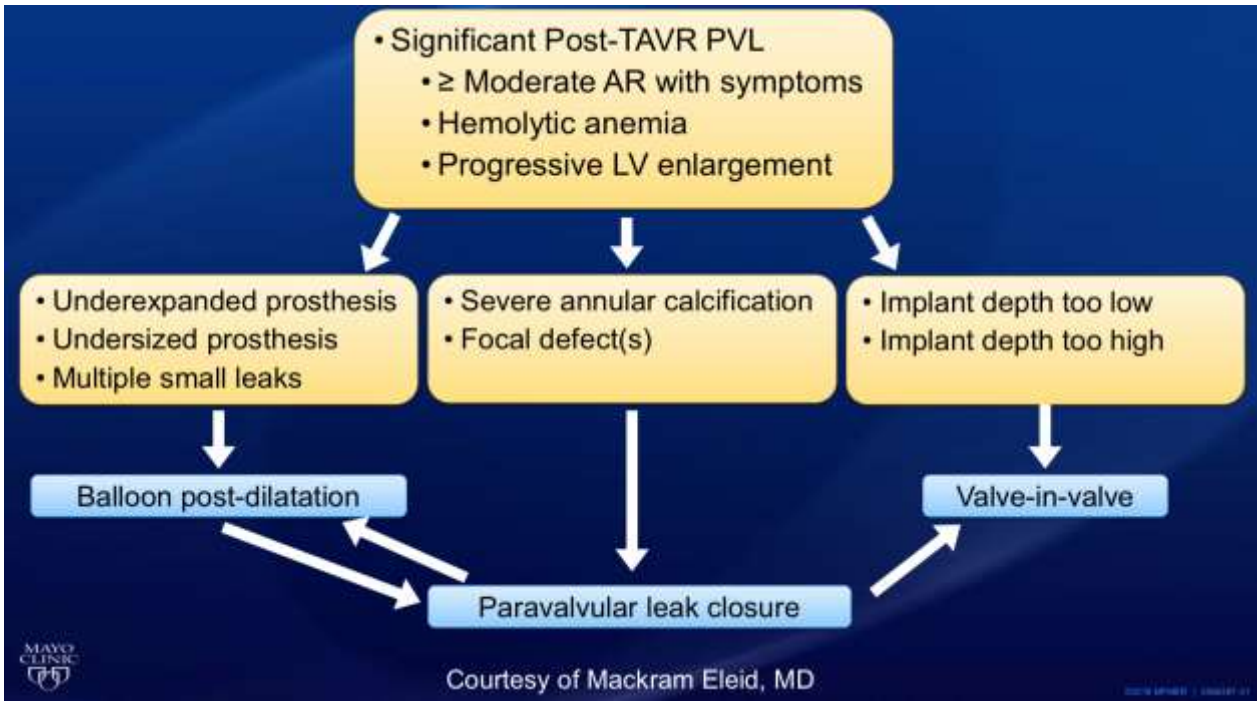
Valve Dislodgment

Need for additional valve ***3 - 5 %***

↓

Procedure success ***< 95%***

4


• Significant Post-TAVR PVL
• ≥ Moderate AR with symptoms
• Hemolytic anemia
• Progressive LV enlargement
• Underexpanded prosthesis
• Undersized prosthesis
• Multiple small leaks
• Severe annular calcification
• Focal defect(s)
• Implant depth too low
• Implant depth too high
Balloon post-dilatation
Valve-in-valve
Paravalvular leak closure
MAYO CLINIC
Courtesy of Mackram Eleid, MD

Case 1

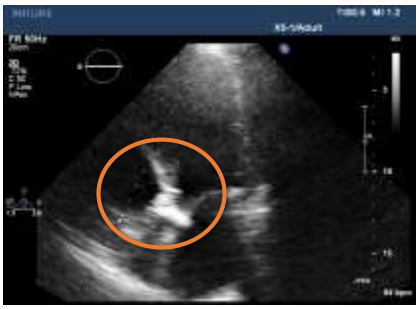
Clinical History

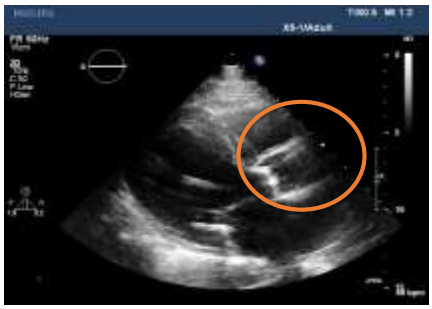
- 80 years old male
- Diabetic on insulin (20 years)
- Hypertensive on Bisoprolol and Amlodipine (15 years)
- AF on anticoagulation
- PVD, claudication at less than 50 meters
- COPD on chronic inhalers
- Renal impairment.

Clinical History

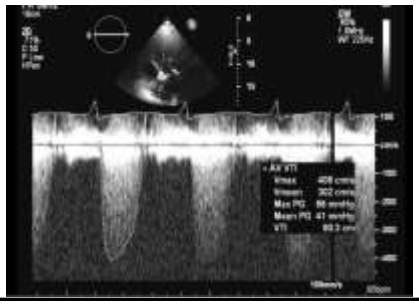
- He was poorly mobile due to his musculoskeletal problems
- Shortness of Breath on moderate exertion
- STS PROM: 10.87%
- Euro Score II: 14.9%

Echocardiography

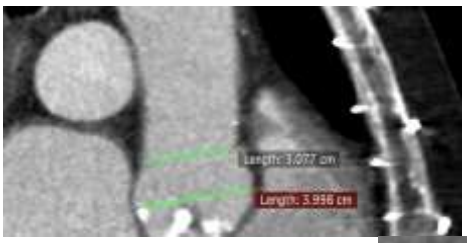


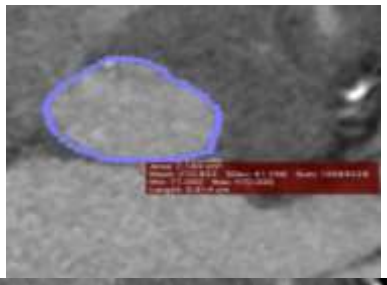


AVA= 0.6 cm^2
Peak/Mean =86/41 mmHg
Mild MR

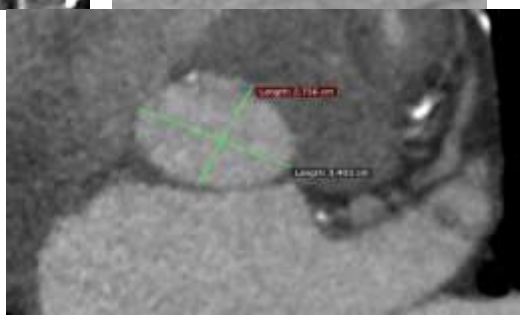


CT Aortic Valve





Perimeter of 99.0mm
Area of 71.8 mm^2

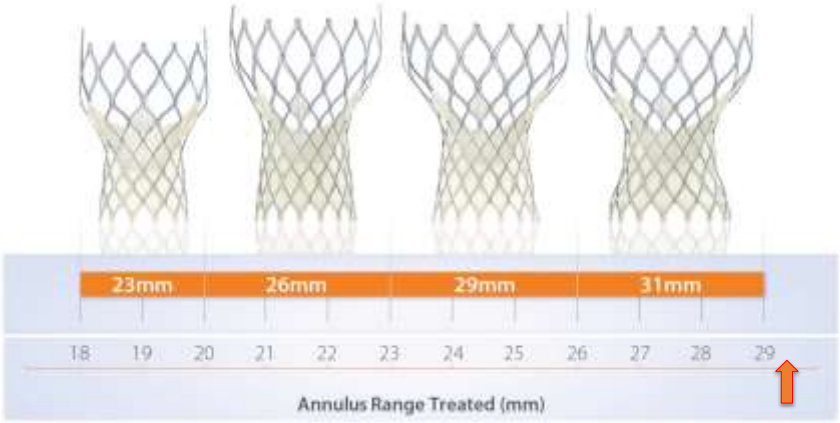


Mean Annular Diameter

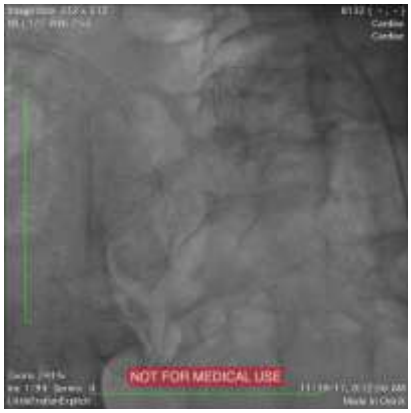
30.6 mm

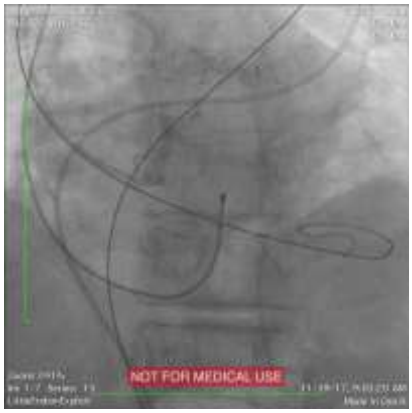
CT Aortic Valve

34Evolute R valve

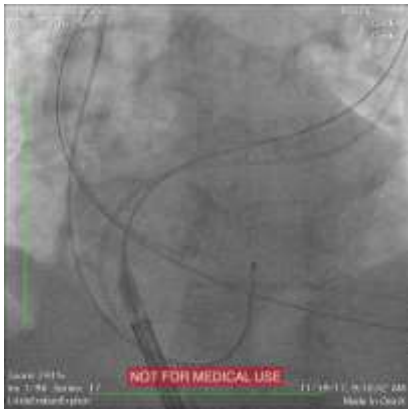


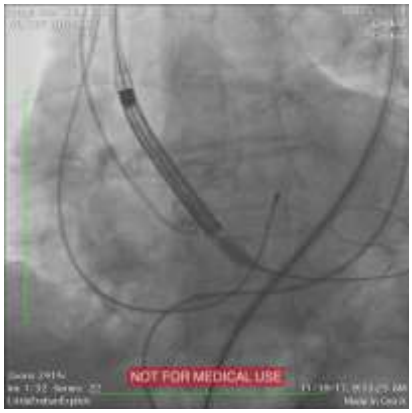
After proglide insertion the stiff wire placed inside the LV cavity



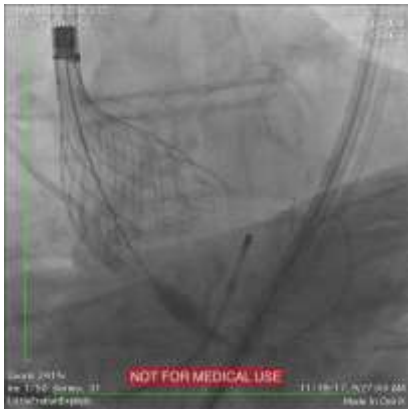


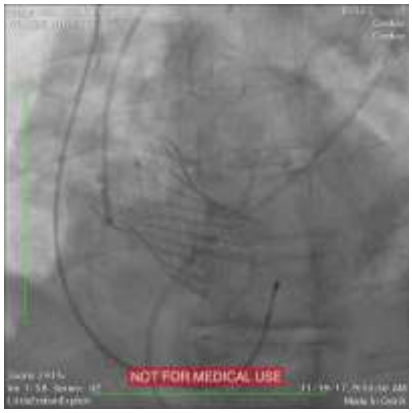
34Evolute R valve was used



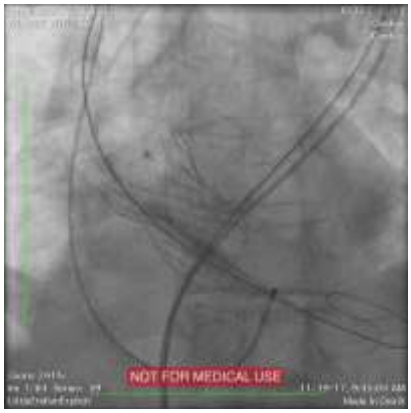


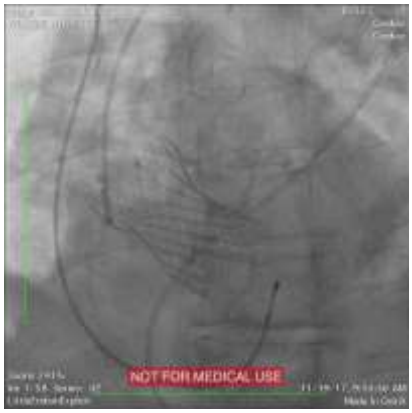
Final release of the valve with significant paravalvular leakage



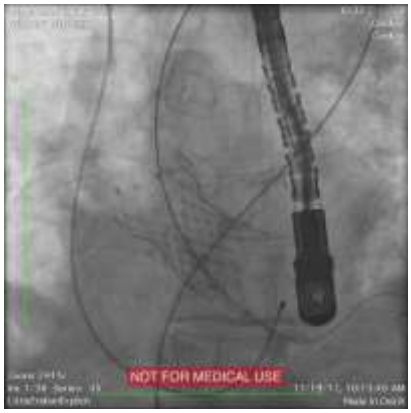


Post balloon inflation by 26mm balloon
still significant paravalvular leakage?





Finally 28mm balloon was used with improvement of paravalvular leakage(mild)



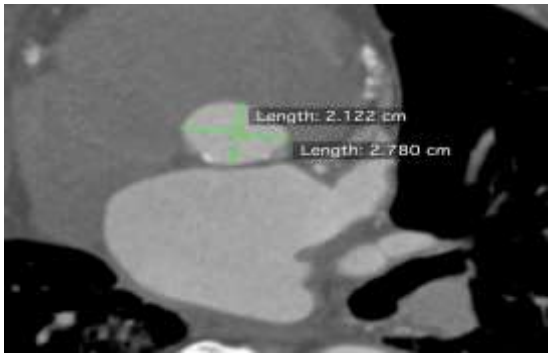
- TTE was done one month later and revealed mild aortic regurgitation
- The patient doing well for two years

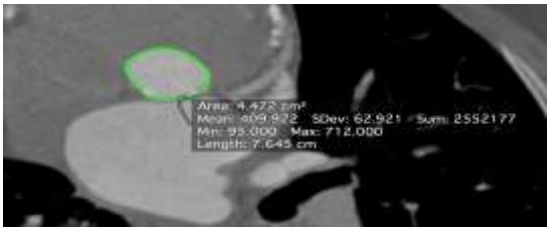
CASE 2

CASE History

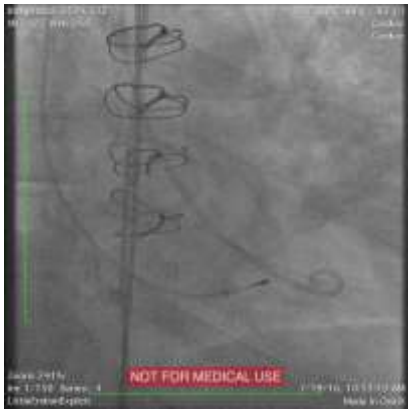
- Male patient aged 71 ys old.
- He did CABG 10 ys ago.
- Discovered of severe aortic stenosis 2 years ago.
- He complained recurrent attacks of pulmonary edema.
- His lab is within normal.

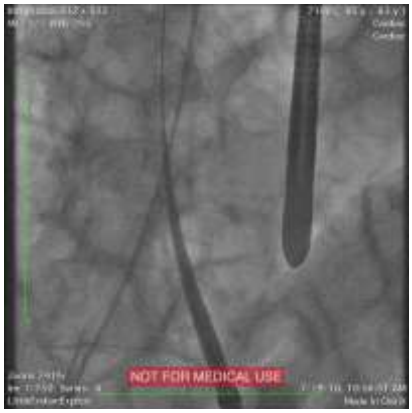
MSCT



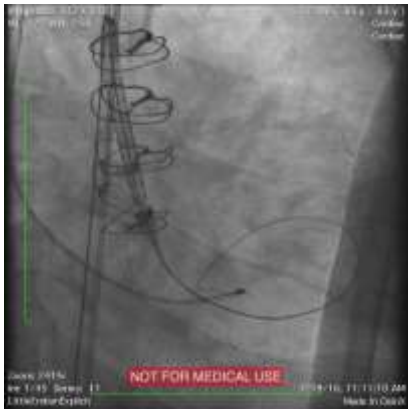


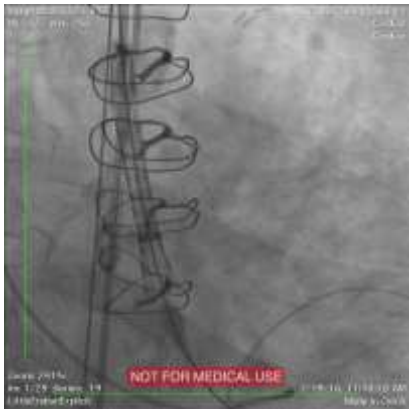
Insertion of proglide then 18F sheath



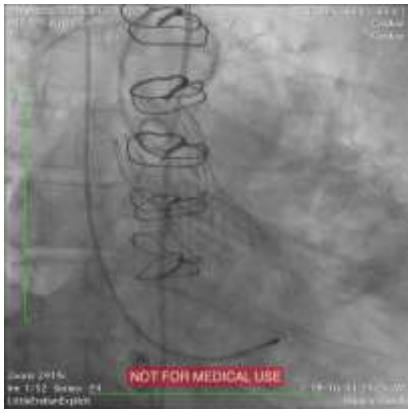


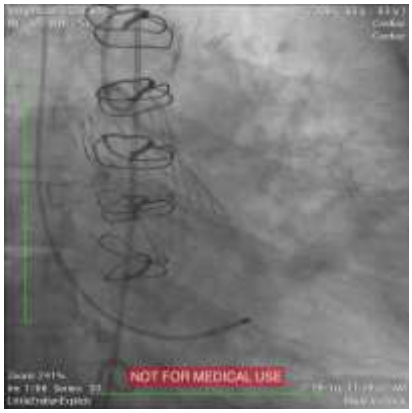
Step by step release of core valve 29mm





Final satisfactory result





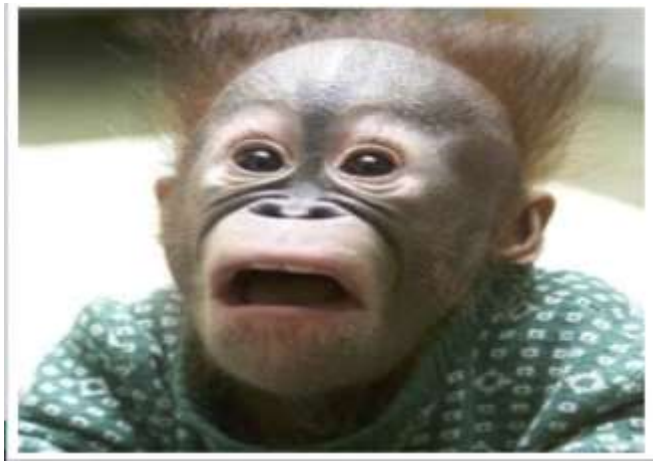
After the procedure

- He was complicated with complete heart block after 24 hours.
- TTE showed mild to moderate mitral regurgitation.
- DDD permanent pacemaker was inserted.

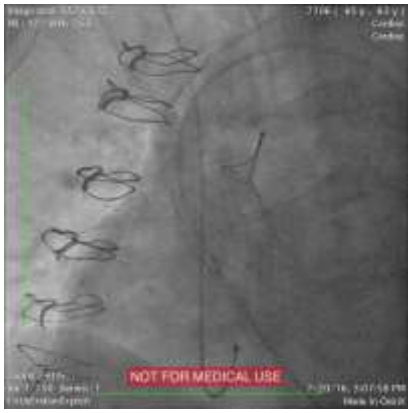
48 hours later

- The pt was arrested and CPR was done for 10 min successfully.
- Urgent TTE and TEE was done and revealed severe mitral leaflets obstruction and severe aortic regurgitation.
- So the pt transferred to cath lab

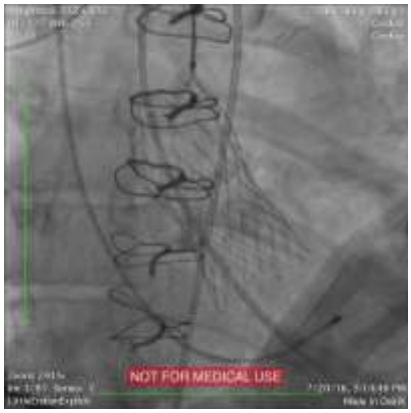
WHAT TO DO?

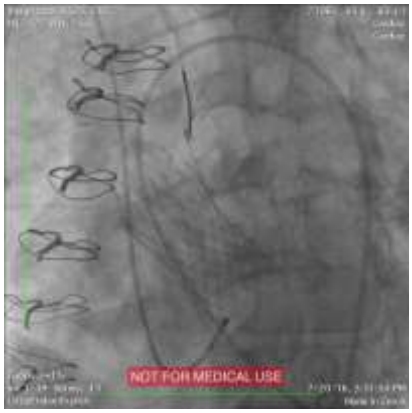


14mm snare was used via TR approach

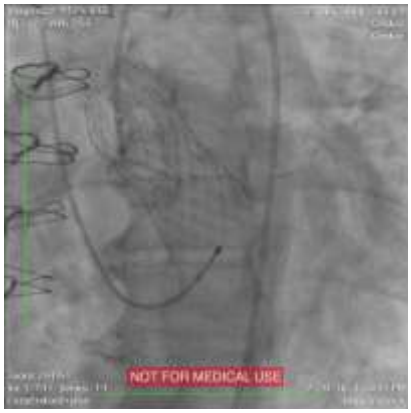


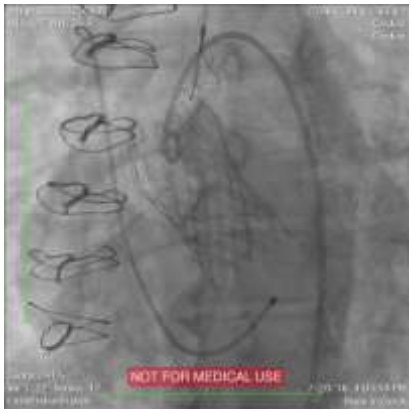
So many trials were done during rapid pacing



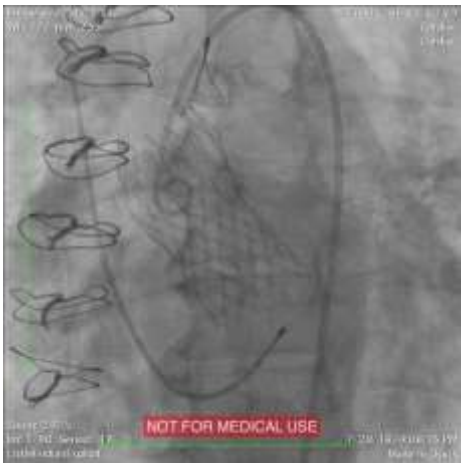


Again a lot of trials to get the best result!!!!!!!





FINAL RESULT



Follow up

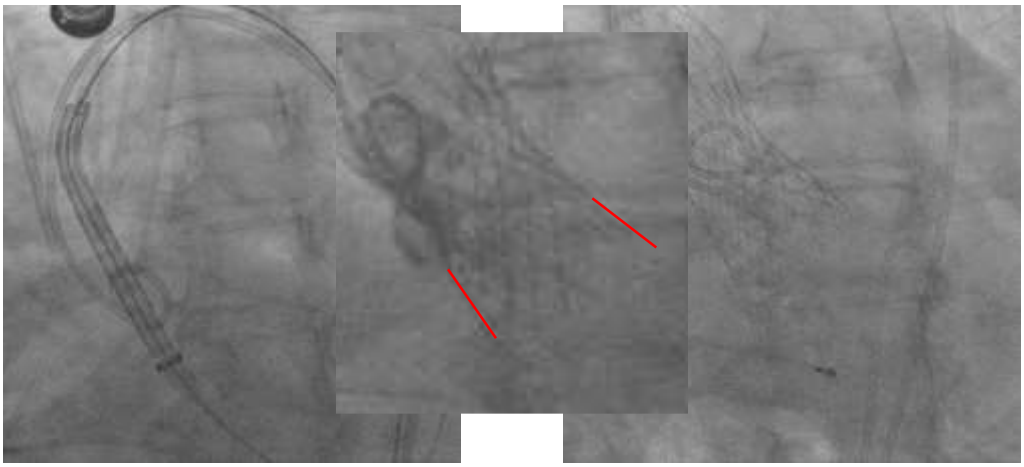
- The pt is doing well for 5 years.
- Mild aortic regurgitation.
- he regained his sinus rhythm after one month from the procedure.

CASE 3

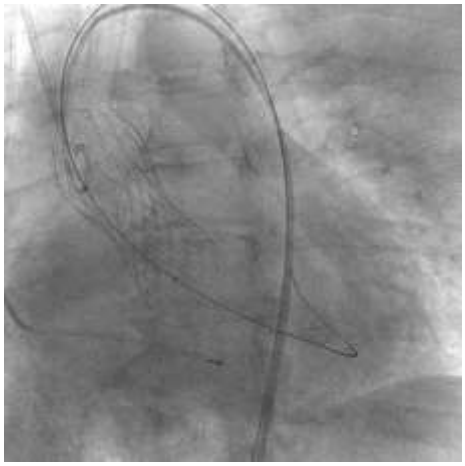
Case History

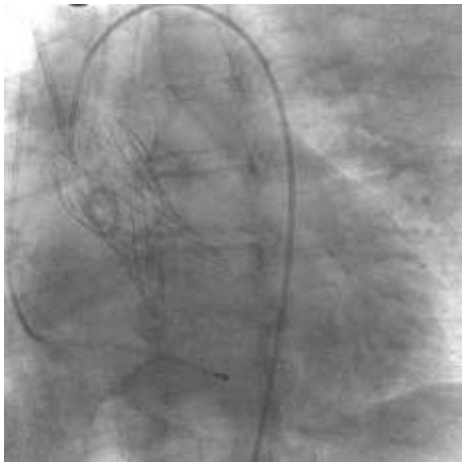
- 70 years old female patient
- Morbidly obese
- COPD
- Severe calcific aortic stenosis
- NYHA III

Significant aortic regurgitation!!!

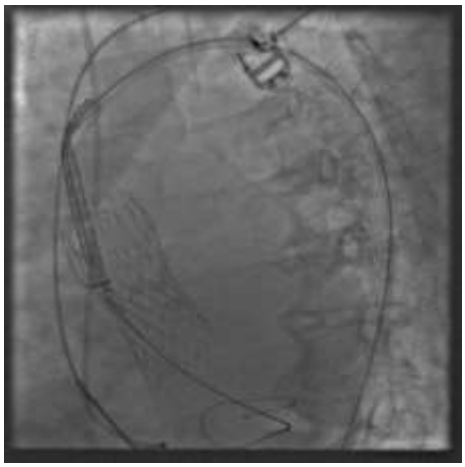


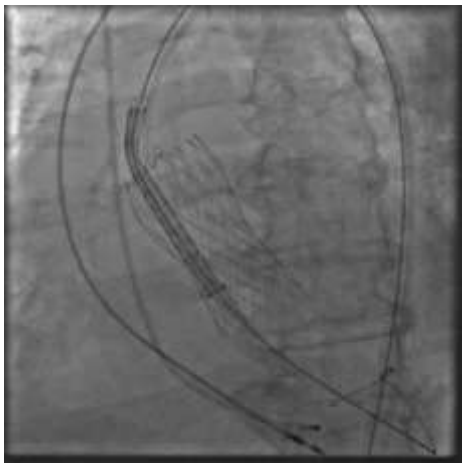
AR post dilatation

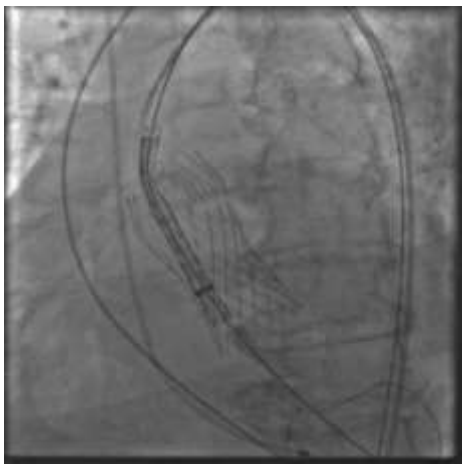


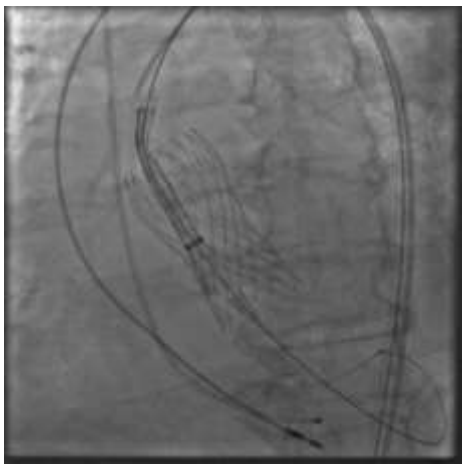


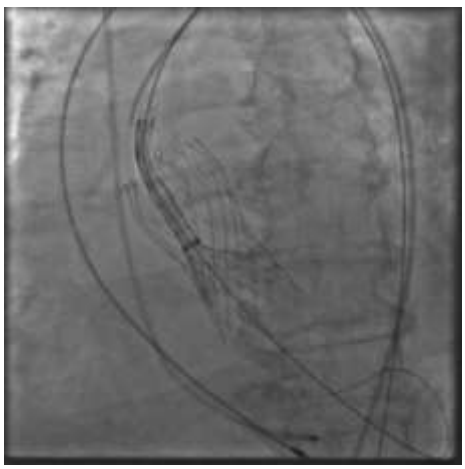
2nd valve should be deployed

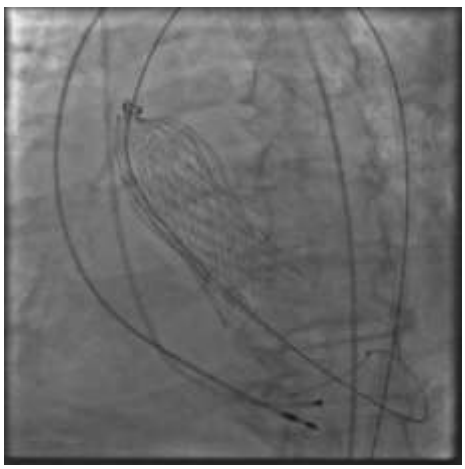




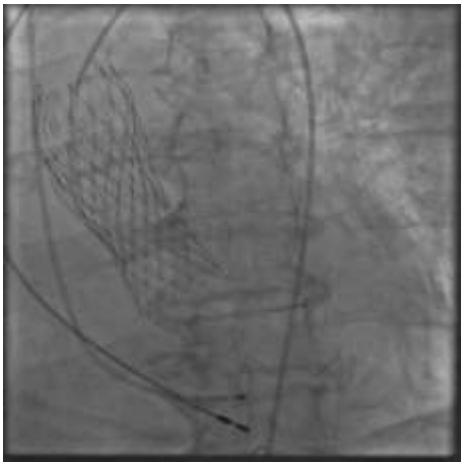








Final result



TAKE HOME MESSAGE

- Acute severe AR after TAVI should be immediately diagnosed and properly managed according to underlying etiology.
- AR ≥ 2 after TAVI should no longer be considered benign and every effort should be done to avoid its occurrence and manage properly if happened.

Procedural success critically depends on proper selection, meticulous preplanning, experienced teams (interventional and surgical) and well equipped units. A good TAVI operator is simply not enough.

Thank you