



TAVI:

It's A Case Where It's Okay Not To Be Okay, But Not Okay To Give Up

Teguh Santoso, Sunanto Ng
Medistra Hospital, Jakarta, Indonesia



TCT[®]

TRANSCATHETER
CARDIOVASCULAR
THERAPEUTICS[®]

Disclosure of Relevant Financial Relationships

- I, Teguh Santoso, DO NOT have any financial relationships to disclose.
- I, Sunanto Ng, DO NOT have any financial relationships to disclose.

MN, male, DOB *July 6, 1948 (72)*

*May – July 2021: 3 months hospitalizations due to **refractory HFrEF***

*Lab: ureum 92 mg/dL, creatinine 1.5 mg/dL, eGFR 45.9 cc/m/1.73m² (**Stage 3a**), glucose 209 mg/dL, **HbA1C 8.2**, Bilirubin - Direct: 3,53 mg/dL/Indirect: 1,93 mg/dL, **SGOT 113 U/L**, **SGPT 358 U/dL**, Na 130 mEq/L, K 4.2 mEq/L, **NT ProBNP 18392 pg/mL (N: < 125 pg/mL)***

ECG: SR, poor r waves V1-V3, ST/T changes in I, aVL, V3-V5

Chest film: cardiomegaly, pulmonary edema and right sided pleural effusion (fluctuating)

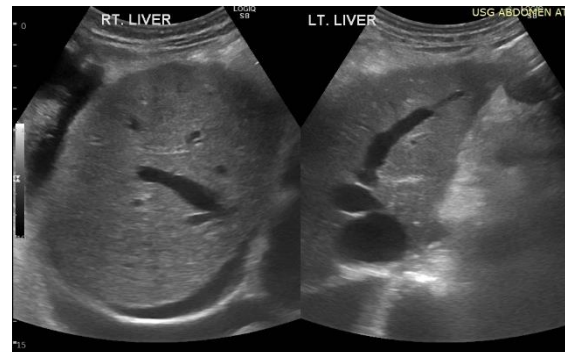
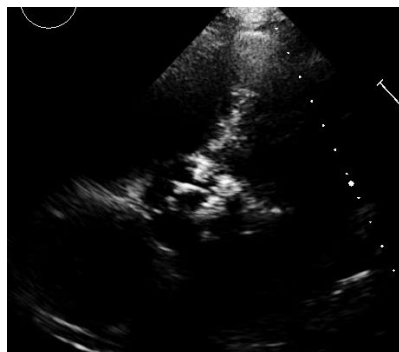
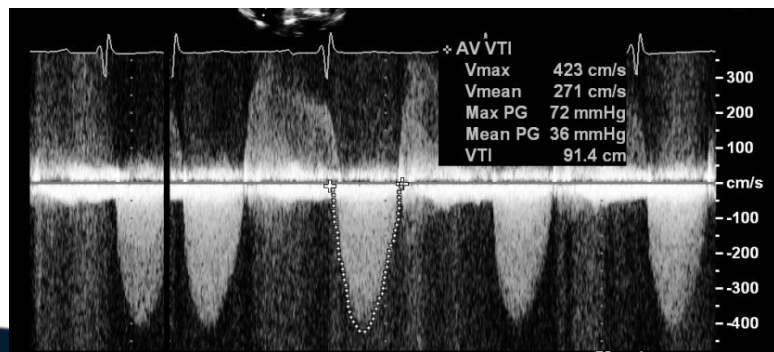
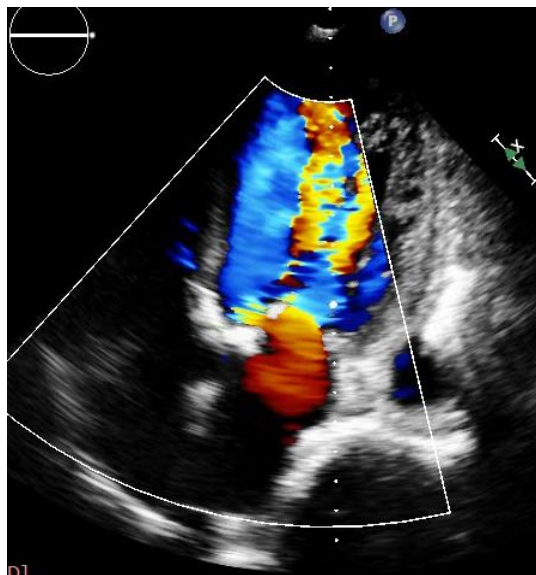
Abdominal USG (June 28, 2021): liver congestion, ascites, right sided pleural effusion

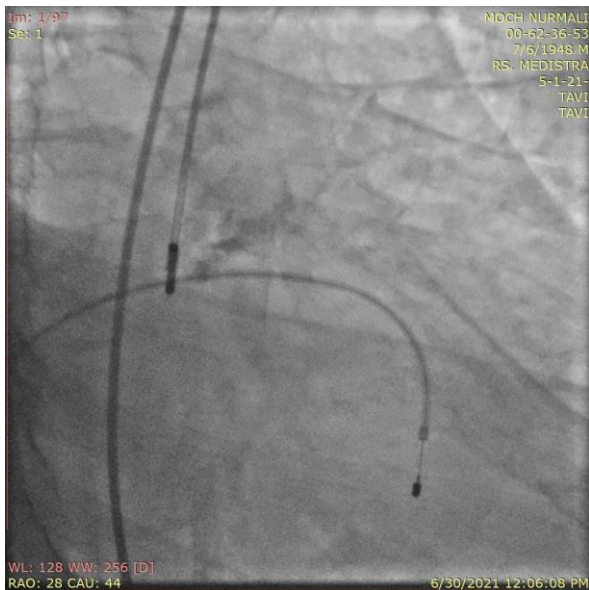
*Echocardiogram (April 20, 2021): **Severe, calcified AS, AVA 0.7 mm², Max PG 72 mmHg, Mean PG 36 mmHg, VTI 91.4 cm/s, moderate AR**, LV dilatation, **EF 36%**, moderate MR, MAC*

*Cath (May 27, 2021): **normal coronaries***

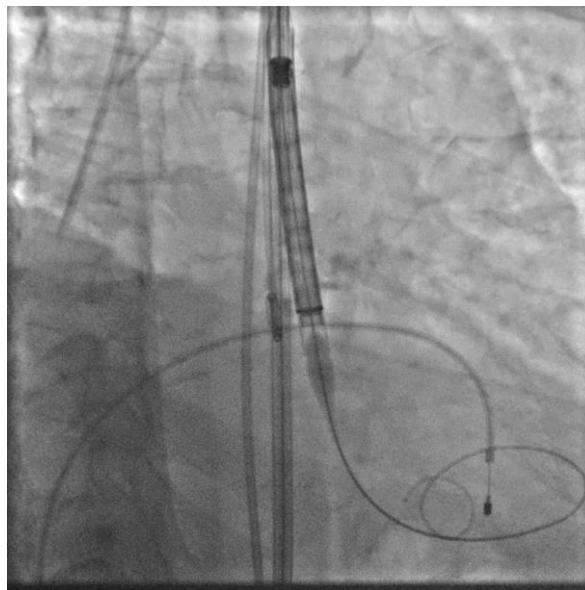
EuroScore II 43.93%, STS risk for mortality 9.3%, risk of morbidity or mortality 41.6 %

Tx: furosemide, spironolactone, sacubitril/valsartan, KSR, tolvaptan, digoxin, empaliflozin, DAPT

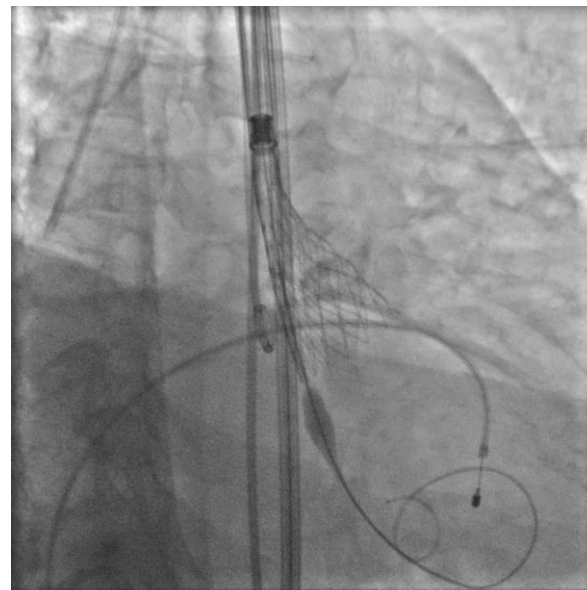




Cusp overlap view.
Heavily calcified AoV.
AR. No predilatation



Before valve implantation, **proper valve loading** was confirmed by fluoroscopy. Video showed beginning of deployment (mid of pig tail)

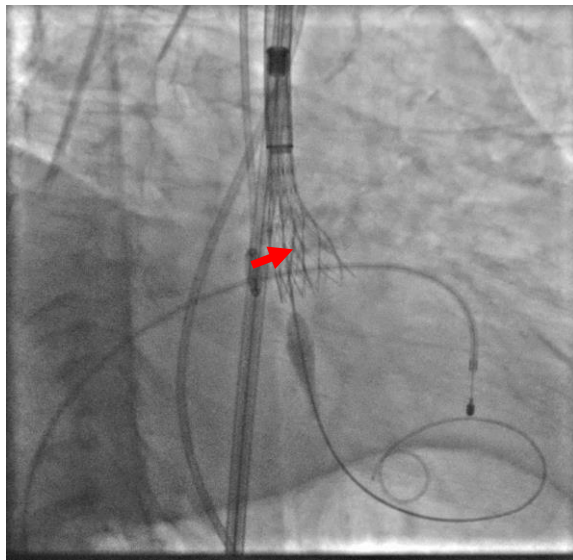


Heart started to slow.
Deployment was too deep.



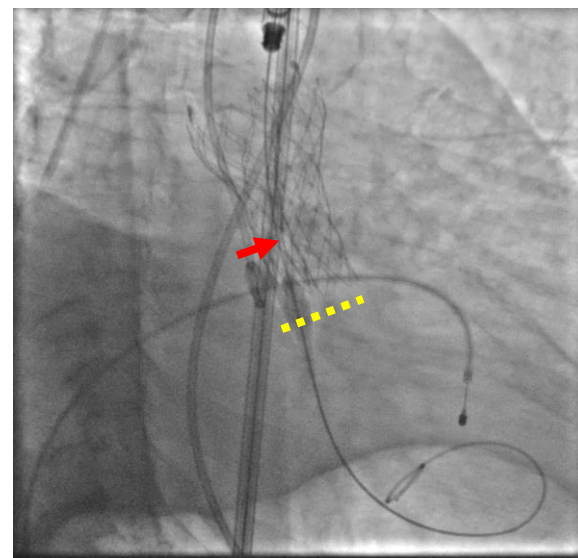
Device recaptured.

VF ensued, DC shock, CPR (62 min)

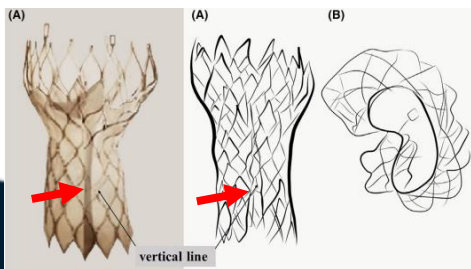


Redeployment of device.

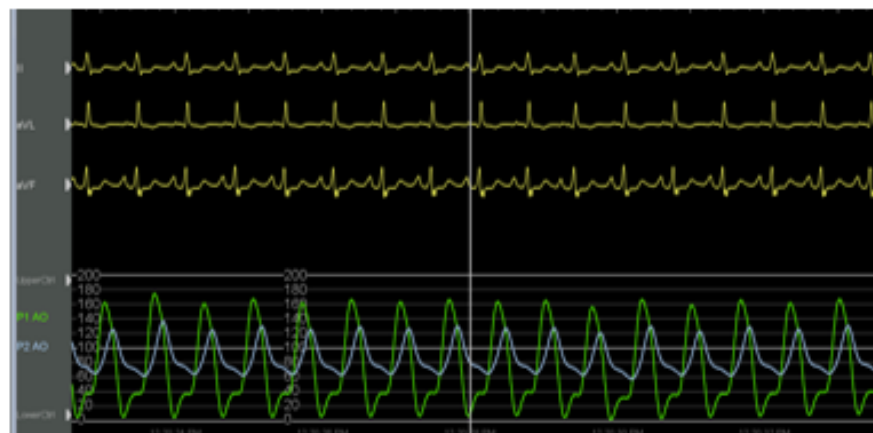
Cardiac standstill.



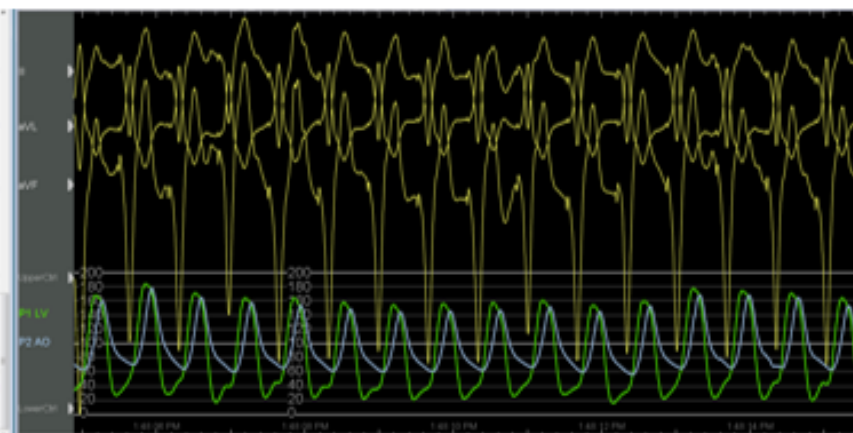
THV appears constrained with a narrow transverse diameter (yellow line). String sign (arrow)



String sign (arrow) indicating infolding of struts, probably due to predilatation not carried out, re-sheathing & aggressive CPR



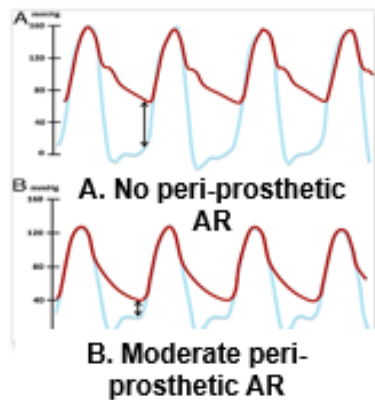
Baseline: Peak PG 40 mmHg



After TAVI: pacemaker rhythm.

Peak PG 8 mmHg.

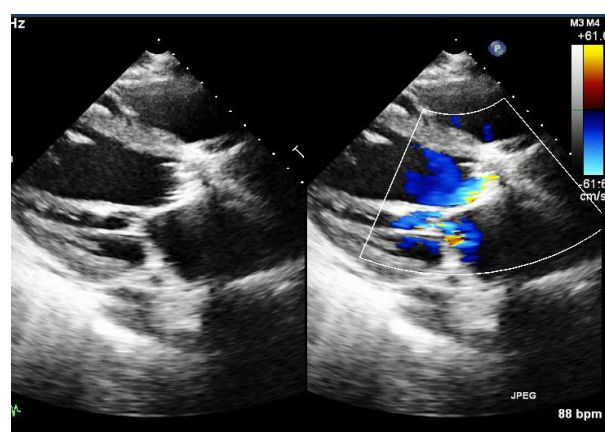
AR index 21 (~moderate AR)



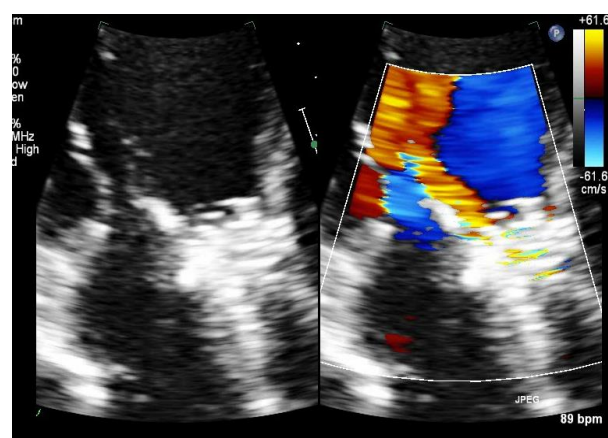
PVL AR Grade	AR index	Rough value
None	31.7 ± 10.4	40s
Mild	28.0 ± 8.5	30s
Moderate	19.6 ± 7.6	20s
Severe	7.6 ± 2.6	10s

AR index : $([DBP - LVEDP]/SBP) \times 100$.

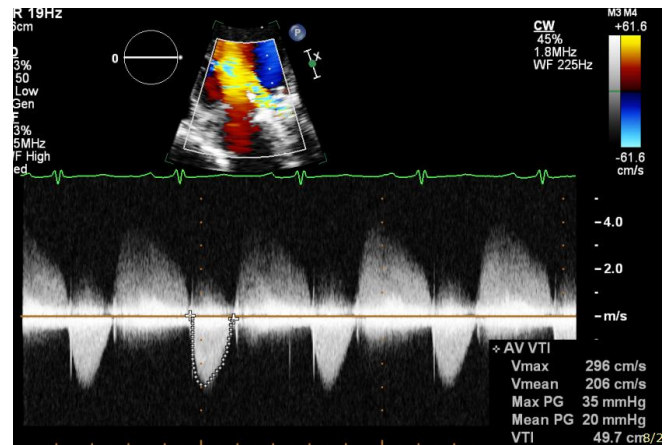
AR index <25 ~
significantly increased **1-year**
mortality risk



***TTE Aug 28, 2021
+2 months***



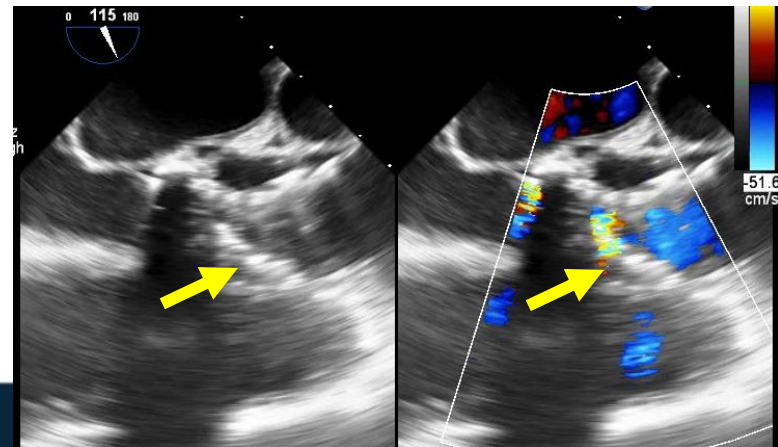
Moderate AR



**Max PG 35 mmHg,
Mean PG 20 mmHg**

***TEE Sept 14, 2021
+2.5 months***

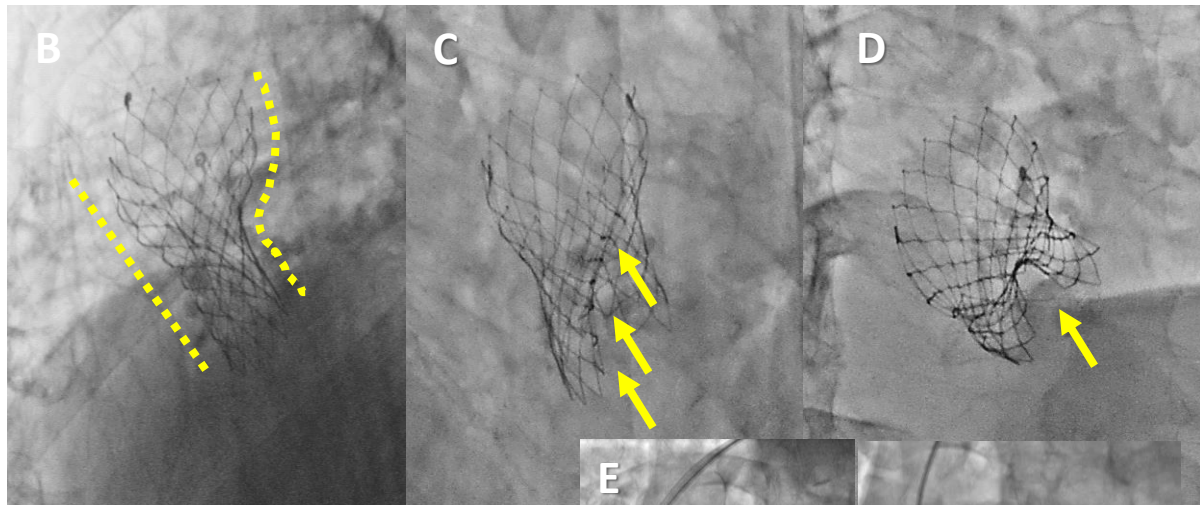
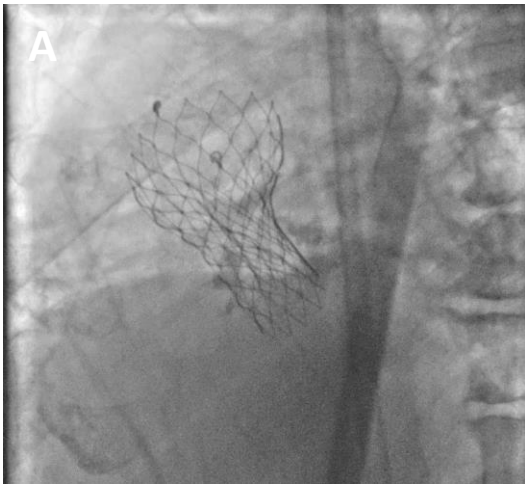
**Infolded valve
(arrow).
Systolic flow**



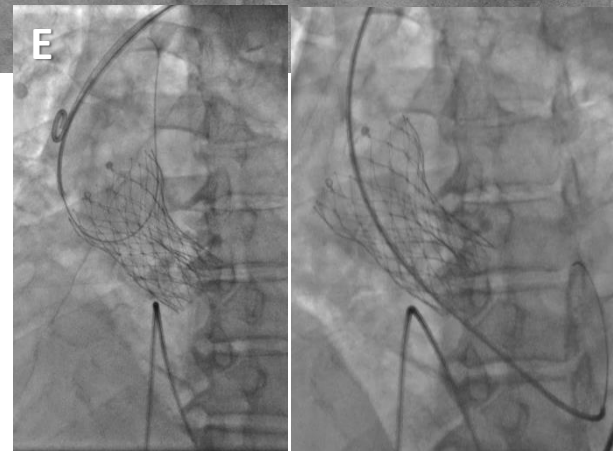
convergence. AR

2.5 months after TAVI

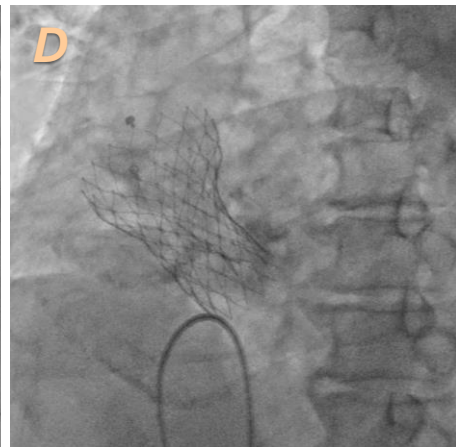
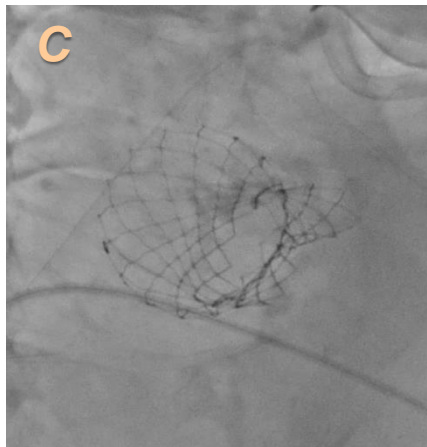
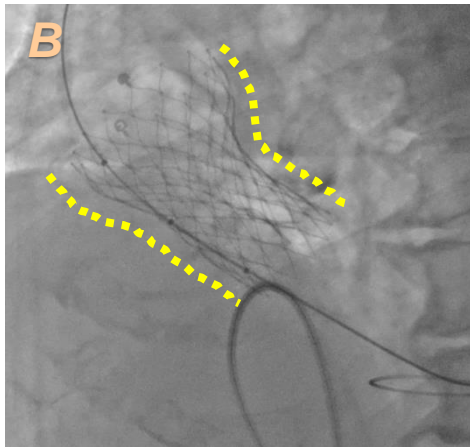
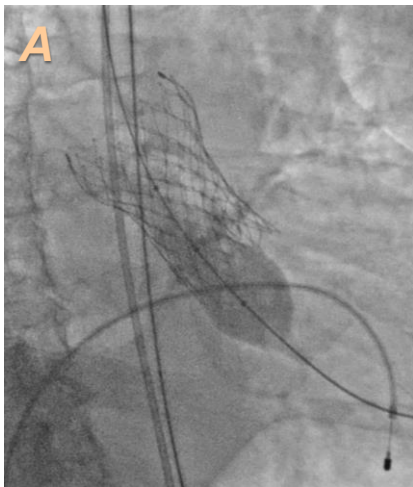
- Decided to treat the infolded THV



B,C,D. Stop frame images of infolded valve



E. To avoid crossing the struts, the valve was crossed using a pigtail catheter & a 0.35" J-tip Terumo wire by prolapsing the wire across the valve

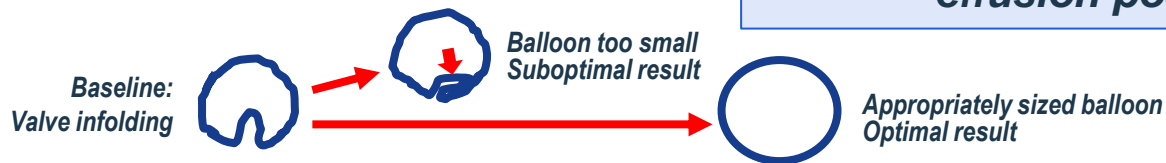


A. Balloon aortic valvuloplasty (Nucleus balloon 25 mm, then 28 mm). CT: Annulus min 22.6; Max: 30.3, Mean 26.2)

B,C,D. Stop frame images and rotational angiography showed better expanded THV almost without infolding

There was also no hemodynamic gradient across the valve.

There was no annular hematoma or pericardial effusion post-procedure on echo.



Conclusion



Happy patient,
happy doctor

- A **HOPE**-less patient with AS, chronic refractory heart failure, liver and kidney failure, and prolonged resuscitation during TAVI is presented.
- After TAVI all the above medical problems **gradually weaned off**
- He also had **infolded valve** which was treated with **BAV** with acceptable result



Daily exercise

- Never lose **HOPE**, because **HOPE** sees the invisible, feels the intangible, and achieves the impossible (Hellen Keller)