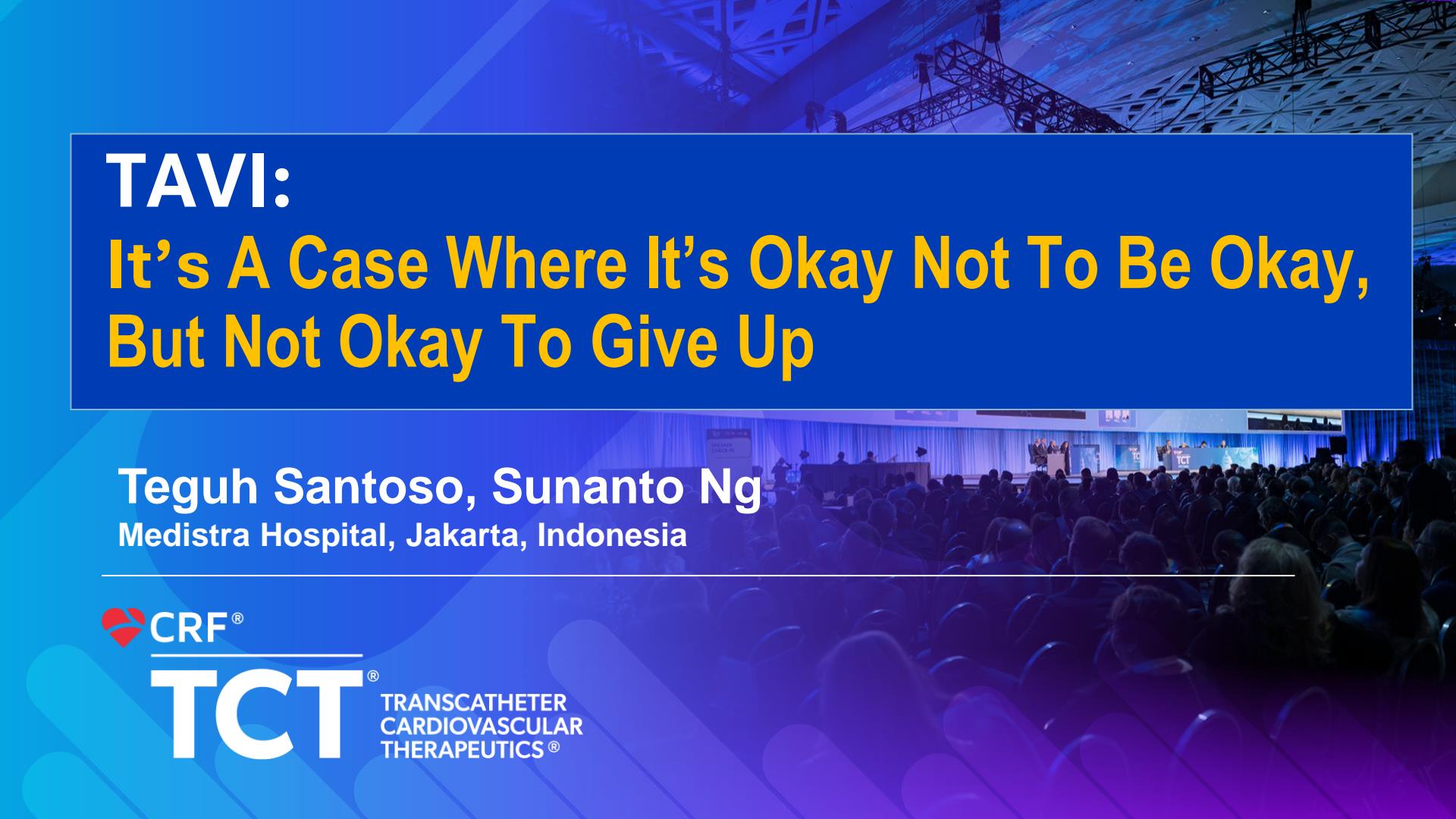


TAVI: It's A Case Where It's Okay Not To Be Okay, But Not Okay To Give Up

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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/m²/1.73m² (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**

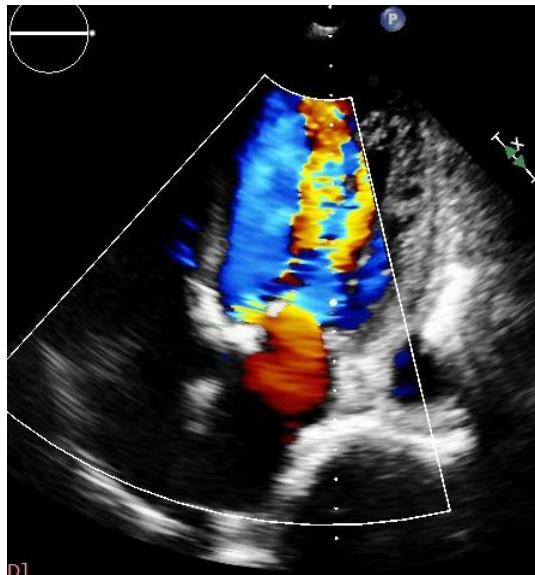
Cath (May 27, 2021): **normal coronaries**

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

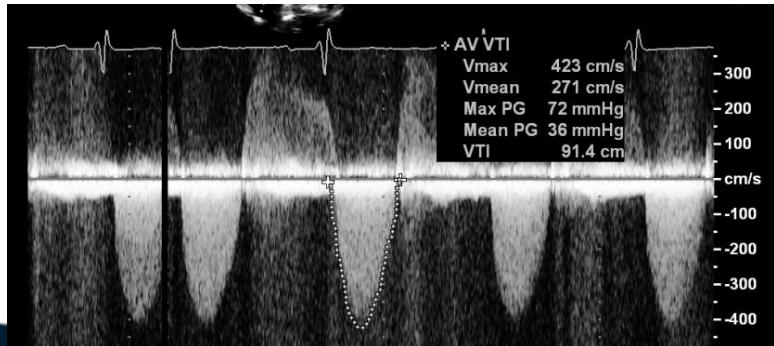
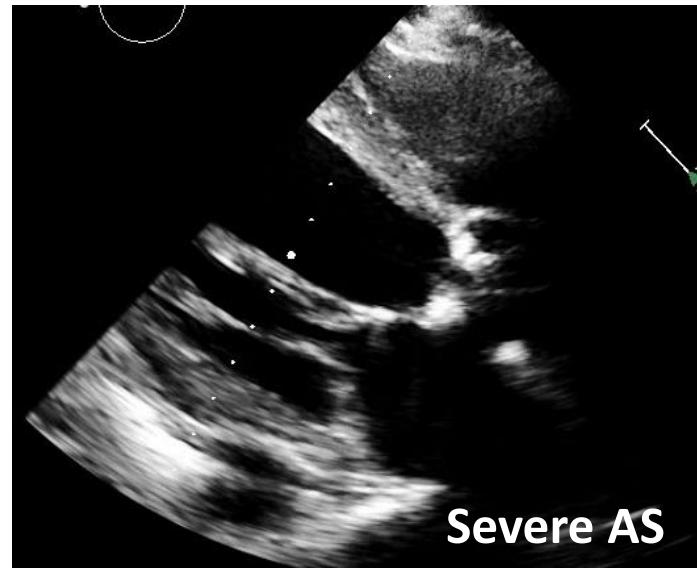
Tx: furosemide, spironolactone, sacubitril/valsartan, KSR, tolvaptan, digoxin, empaliflozin, DAPT



Poor LV



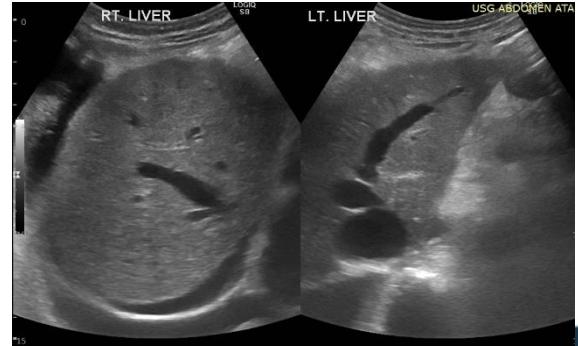
Severe AS



Severe AS



Liver congestion. Ascites



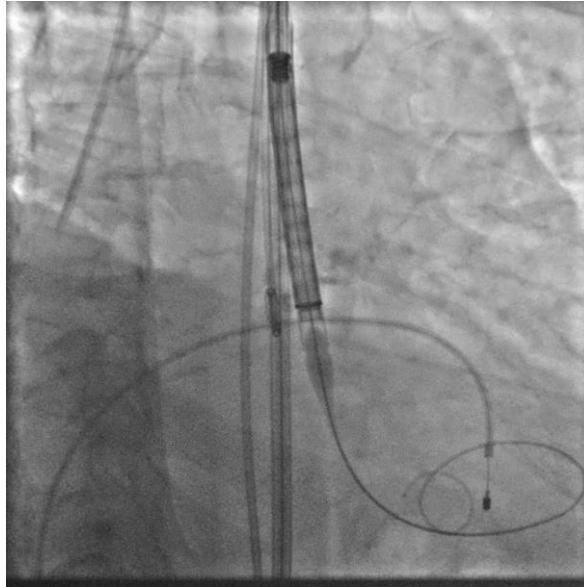
Im: 1/97
Set: 1

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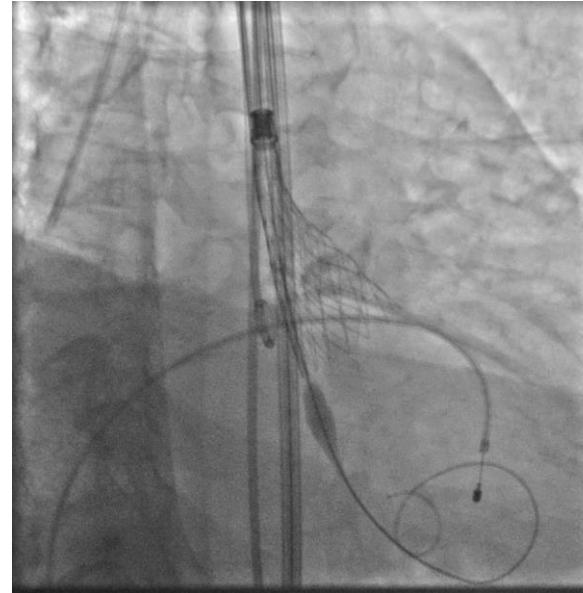
WL: 128 WW: 256 [D]
RAO: 28 CAU: 44

6/30/2021 12:06:08 PM

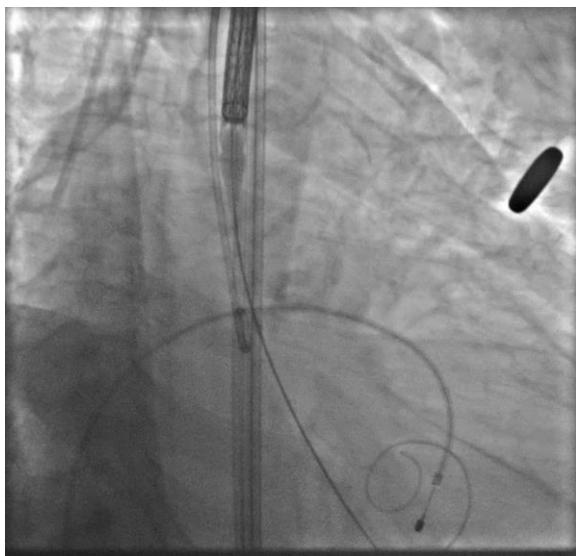
Cusp overlap view.
Heavily calcified AoV.
AR. No predilatation



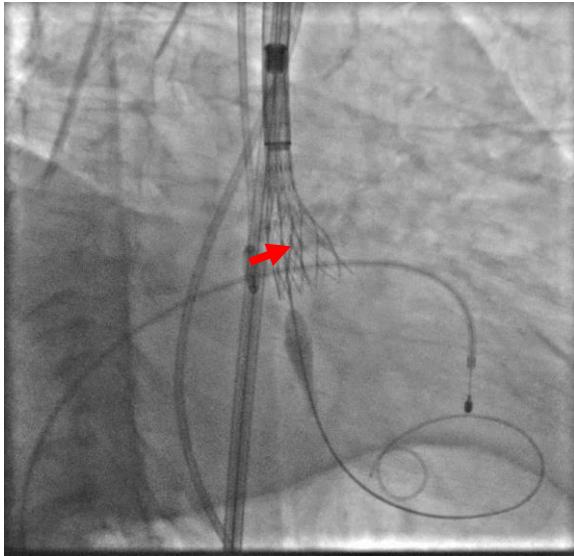
Before valve implantation, ***proper valve loading*** was confirmed by fluoroscopy. Video showed beginning of deployment (mid of pig tail)



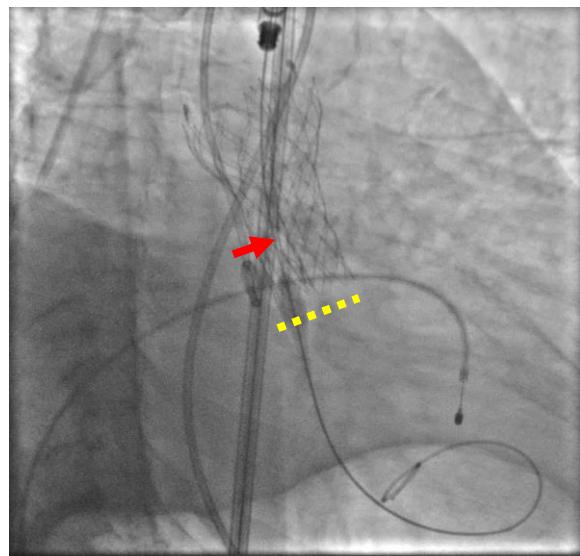
Heart started to slow.
Deployment was too deep.



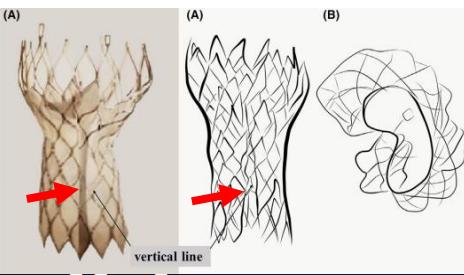
*Device recaptured.
VF ensued, DC shock, CPR (62 min)
Cardiac standstill.*



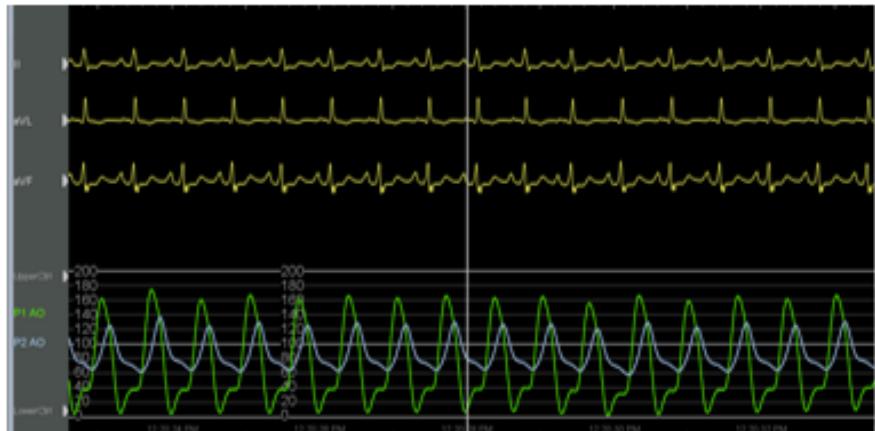
Redeployment of device.



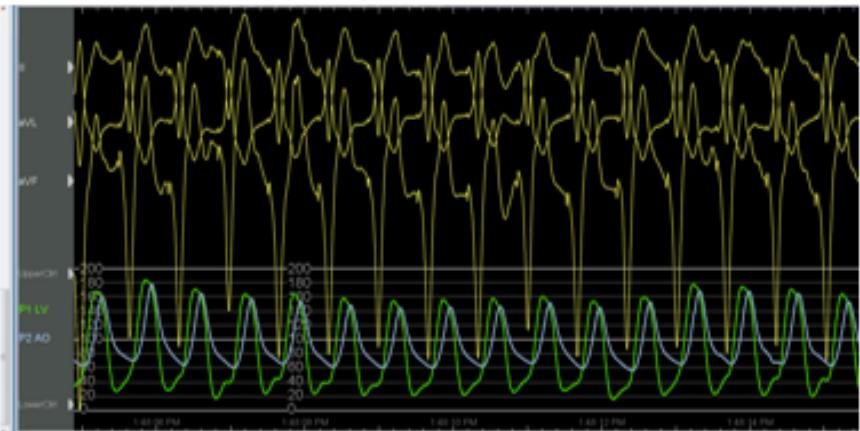
*THV appears **constrained** with
a narrow transverse diameter
(yellow line). **String sign** (arrow)*



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



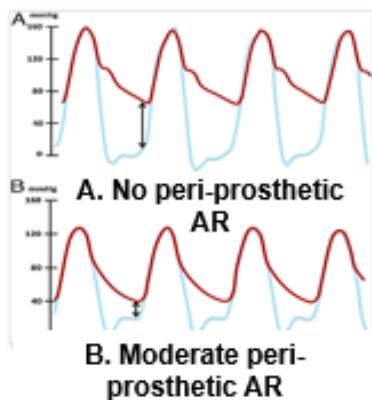
Baseline: Peak PG 40 mmHg



After TAVI: pacemaker rhythm.

Peak PG 8 mmHg.

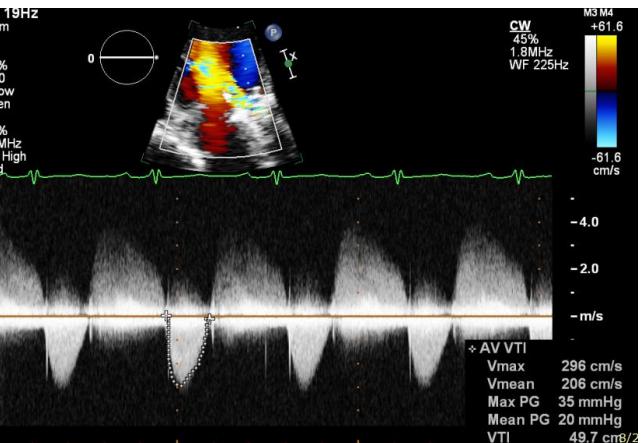
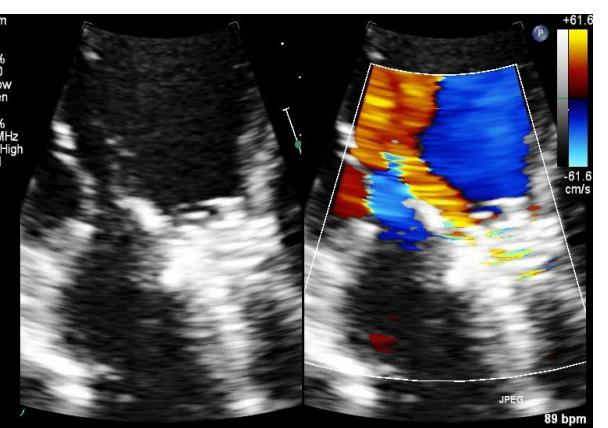
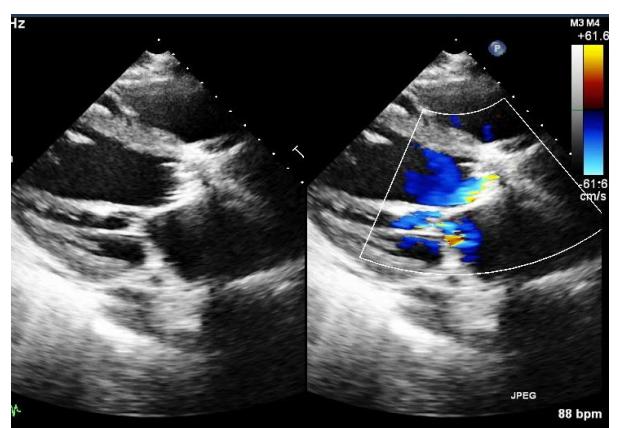
AR index 21 (~moderate AR)



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



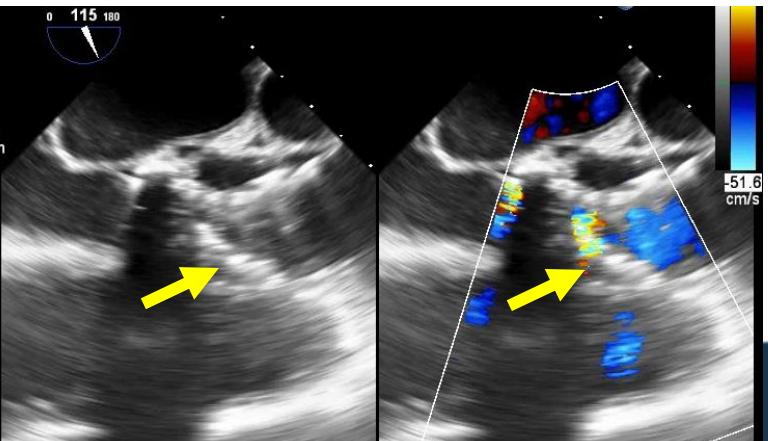
**TTE Aug 28, 2021
+2 months**

Moderate AR

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

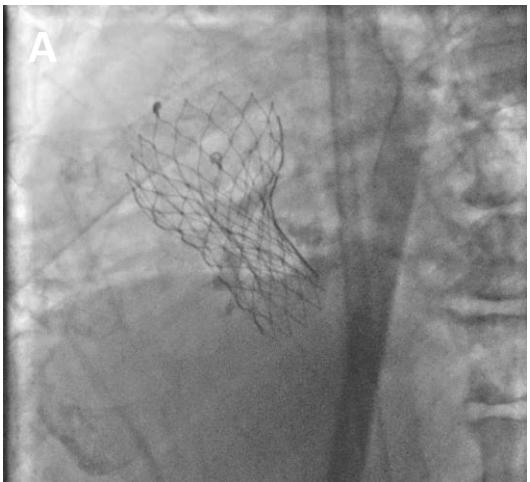
**TEE Sept 14, 2021
+2.5 months**

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

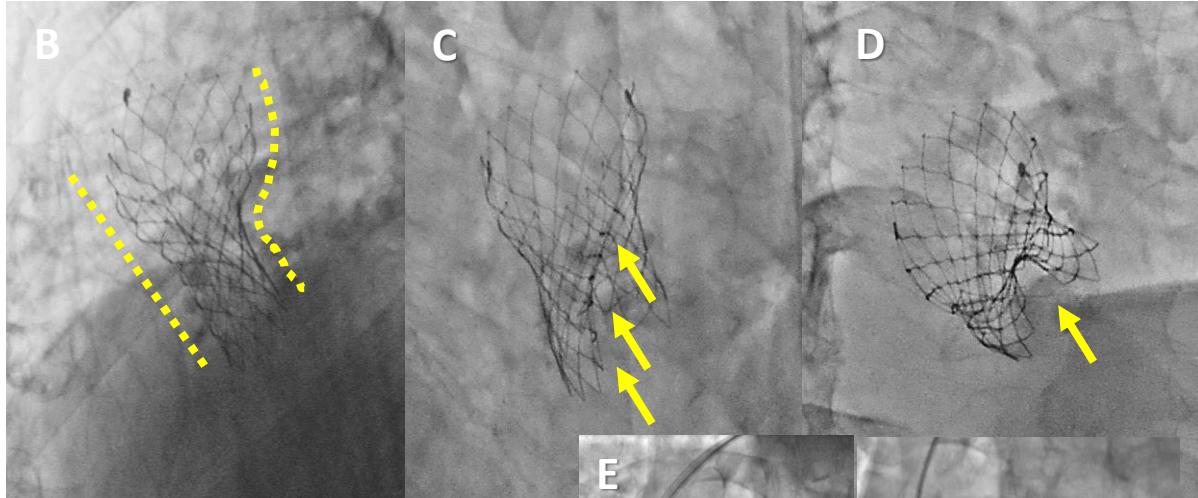


2.5 months after TAVI

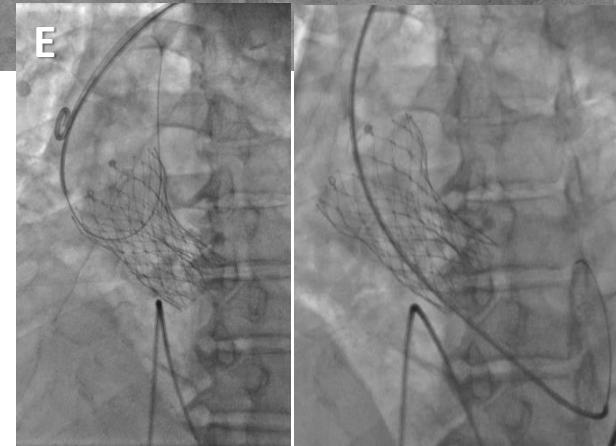
- Decided to treat the infolded THV



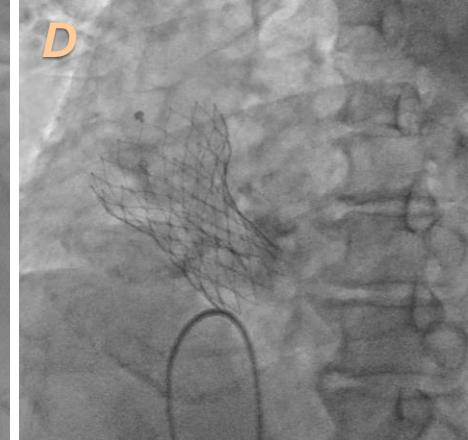
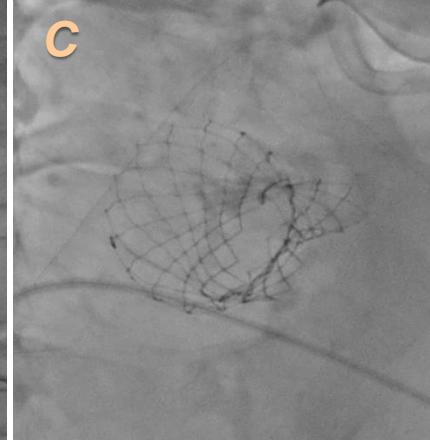
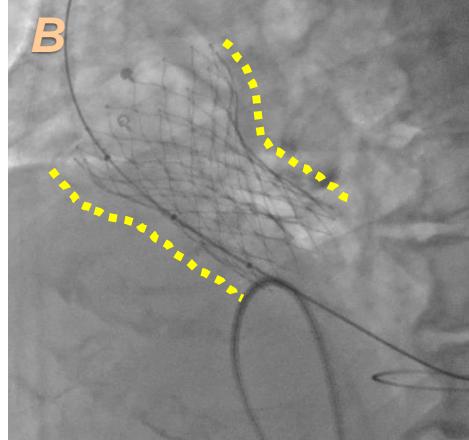
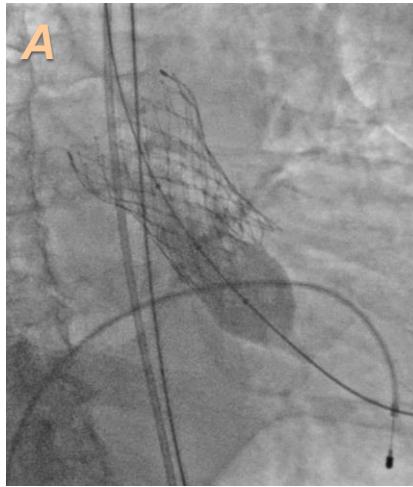
A. Rotational fluoroscopy showing the maldeployed valve



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



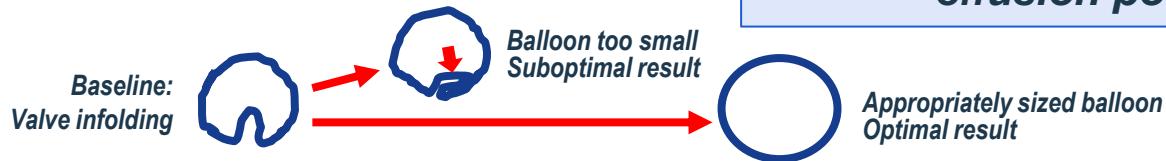
E. To avoid crossing the struts, the valve was crossed using a pigtail catheter & a 0.35" J-tip Terumo wire by prolapsing the wire across the valve



**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)