

TAVI as an emergent tool to save hemodynamics for desperately-ill patient

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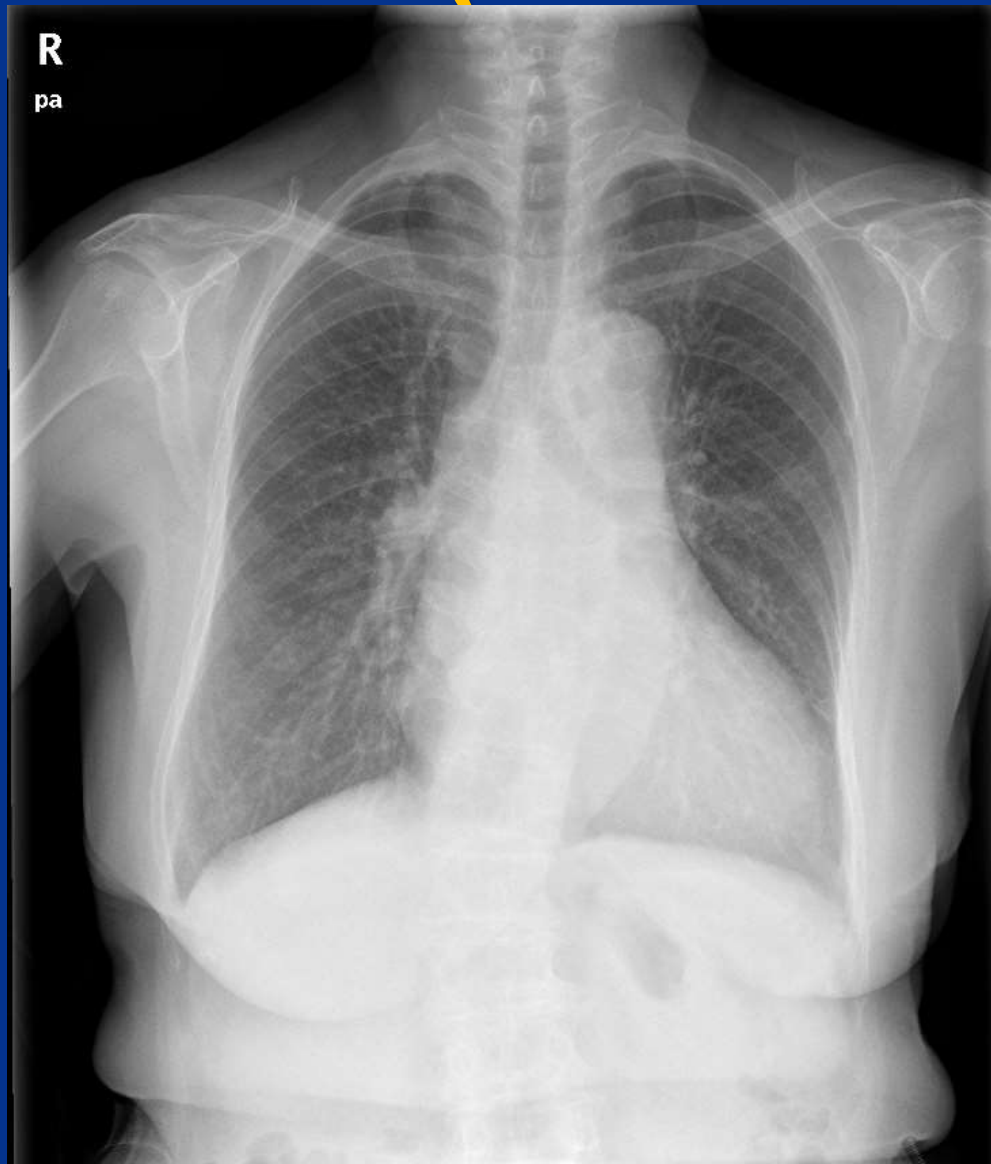
TAVI
as an **emergent** tool
to normalize hemodynamics

**acute pneumonia
& pulmonary edema
& cardiac arrest
on severe AS**

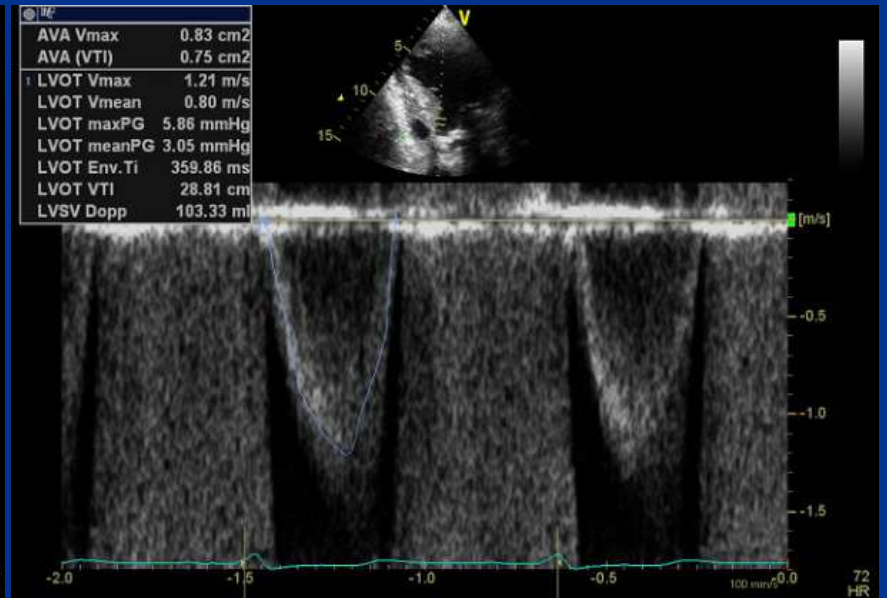
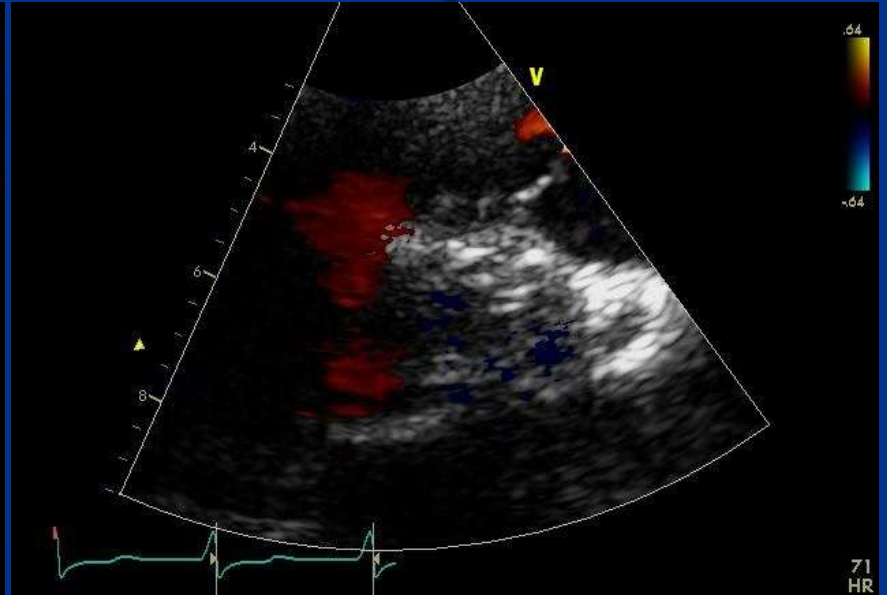
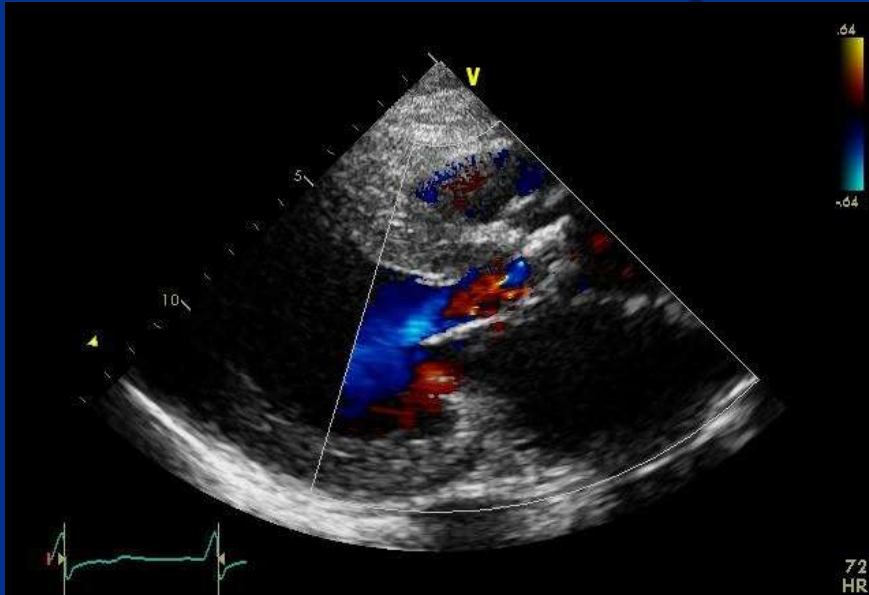
Emergent Sapien3 Case (F / 75)

- Brief history
 - Diagnosed as severe AS 8 ya in outside hospital
 - DOE developed 3 months ago
 - Got pneumonia
- EchoCG
 - Severe AS with moderate AR
 - AVA 0.72cm²
 - AV peak velocity 5.3 m/s, AV mean PG 72.5mmHg
 - Upper normal LV cavity (54/38mm) , normal LVEF 56%
 - Increased LV wall thickness (IVSd/LVPWd 12/12mm)

Chest PA (2016-04-24)



TTE (2016-04-25)



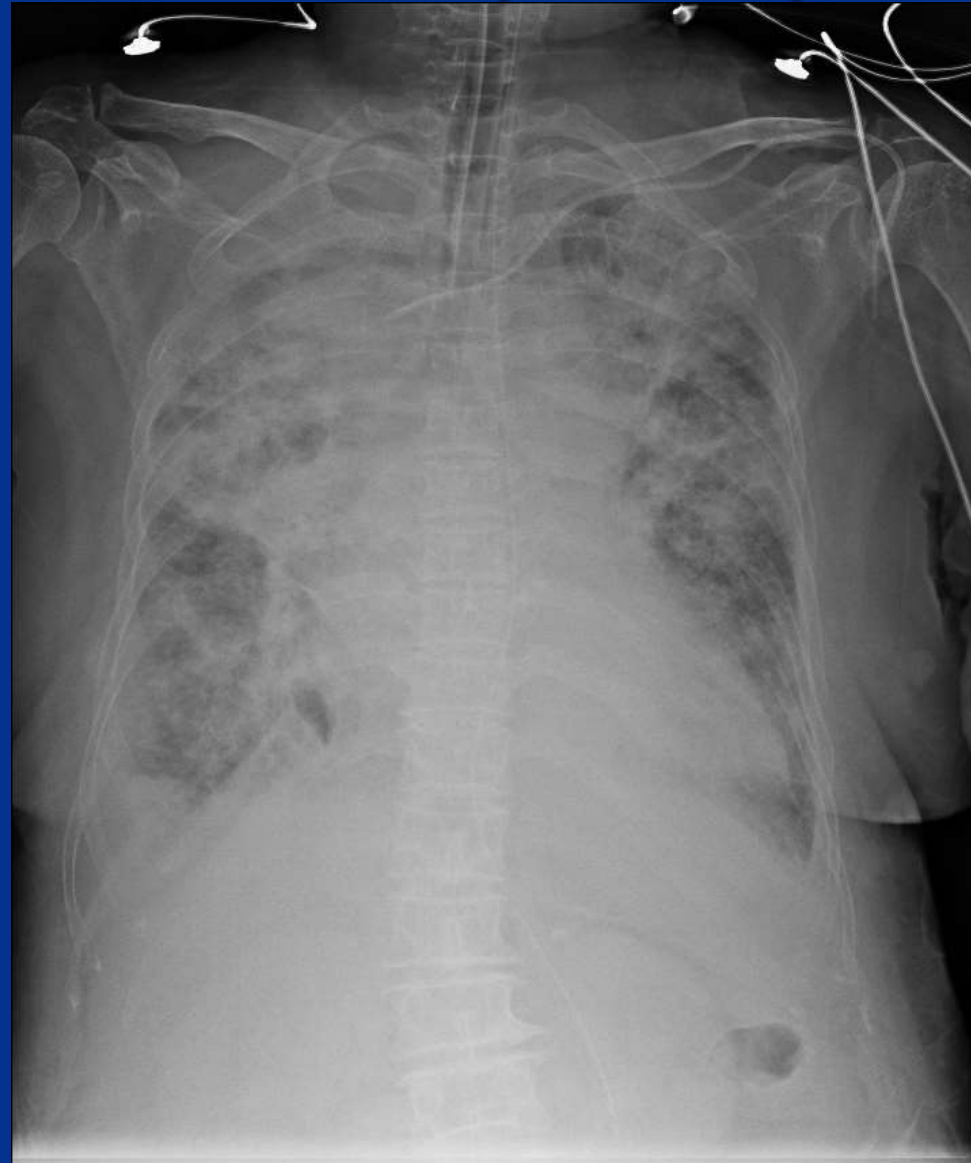
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Emergent Sapien3 Case (F / 75)

- **Deterioration of pneumonia**
 - During admission in the other hospital
 - 20 days (2016/4/25 ~ 2016/5/15)
 - **Aaggravated**
 - in spite of broad antibiotics
 - (cefepime + vancomycin + levofloxacin)
 - ARDS or pulmonary edema
 - Requiring **mechanical ventilator**
- **Transferred to SNU Hospital (2016/5/15)**

Emergent Sapien3 Case (F / 75)

- **Transfer to SNUH (2016.05.15)**
 - ABGA
: 7.14 – 123 – 108 – 41.9
 - Fever up to 39.1
 - CBC 20930 – 9.6 – 171k
(seg 73%)
 - BUN/Cr 23/0.52,
 - e' 138 – 4.5 – 95 – 34
 - CRP 6.1
- **Cardiac arrest at arrival (Ventricular fibrillation)**
ROSC after 9 minutes of CPR



Emergent TAVI

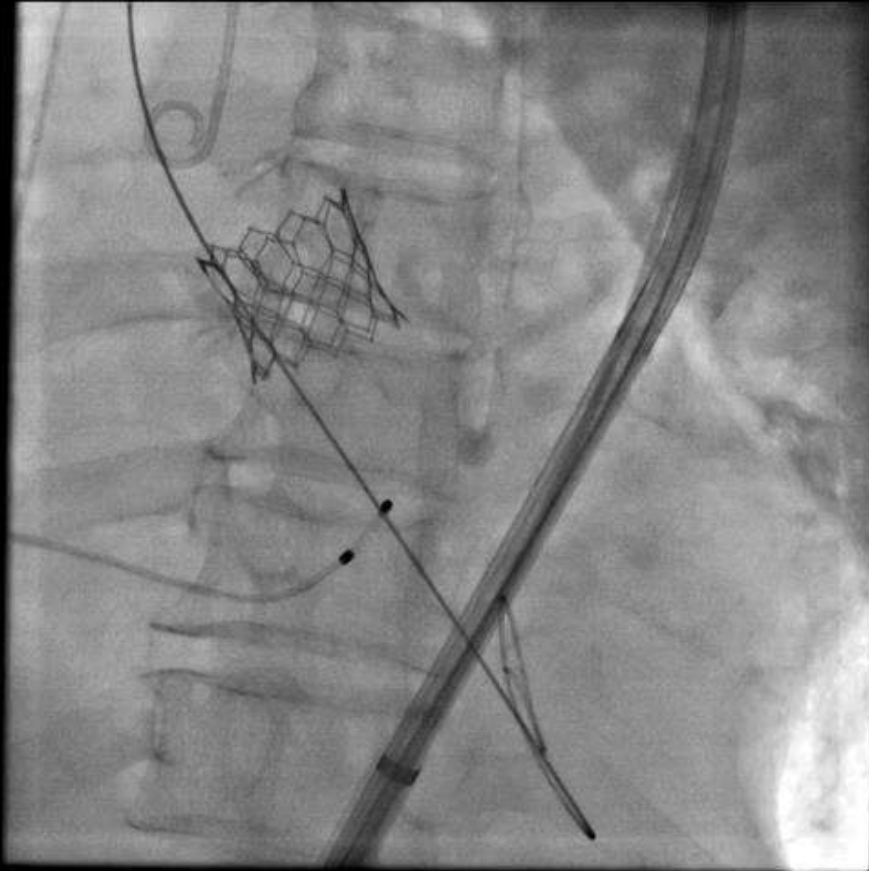
at the next day after correction of abnormal lab findings

Aortography before TAVI (2016-05-16)



Emergent Sapien3 Case (F / 75)

(just 30 minutes' procedure on 2016-05-16)



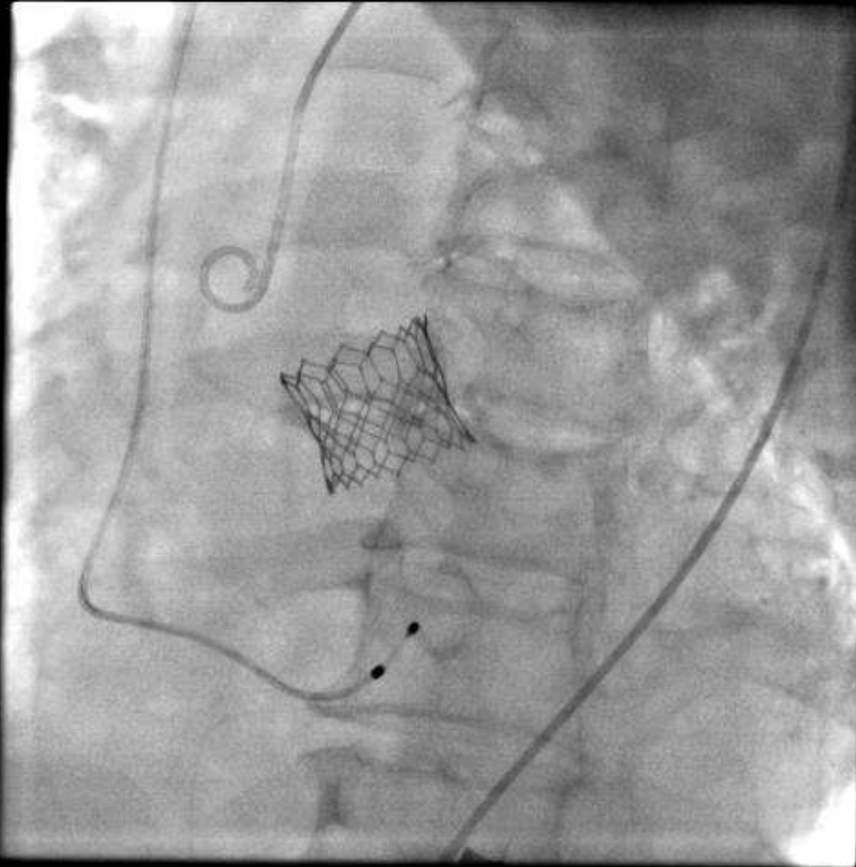
LAO 20



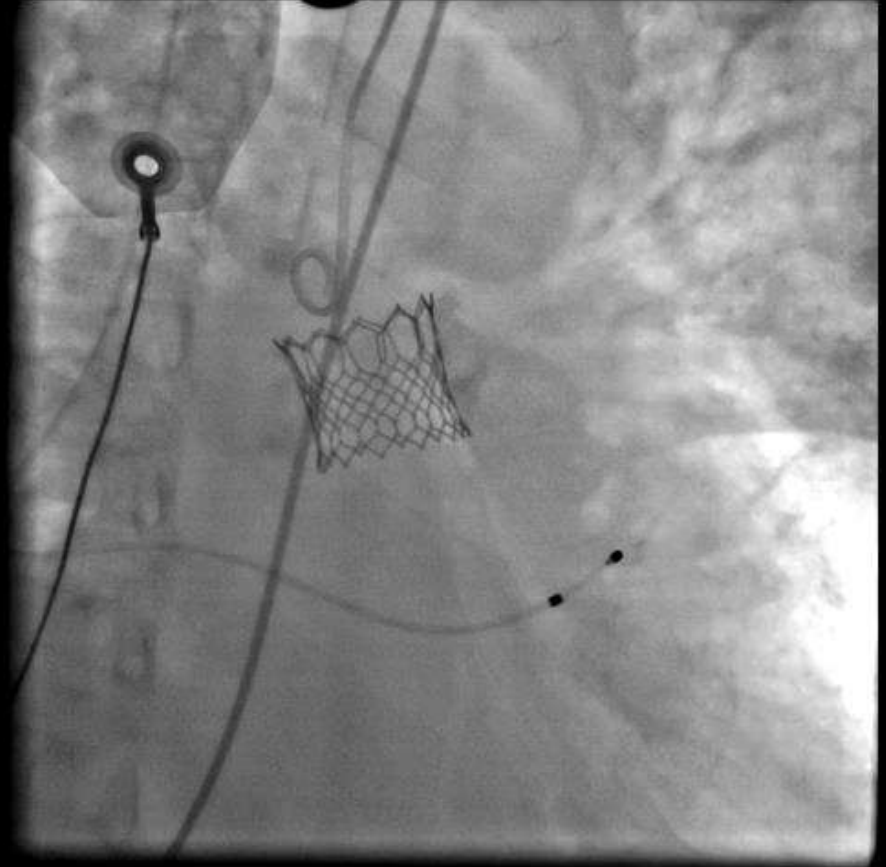
AP CAU 10

Emergent Sapien3 Case (F / 75)

(just 30 minutes' procedure on 2016-05-16)



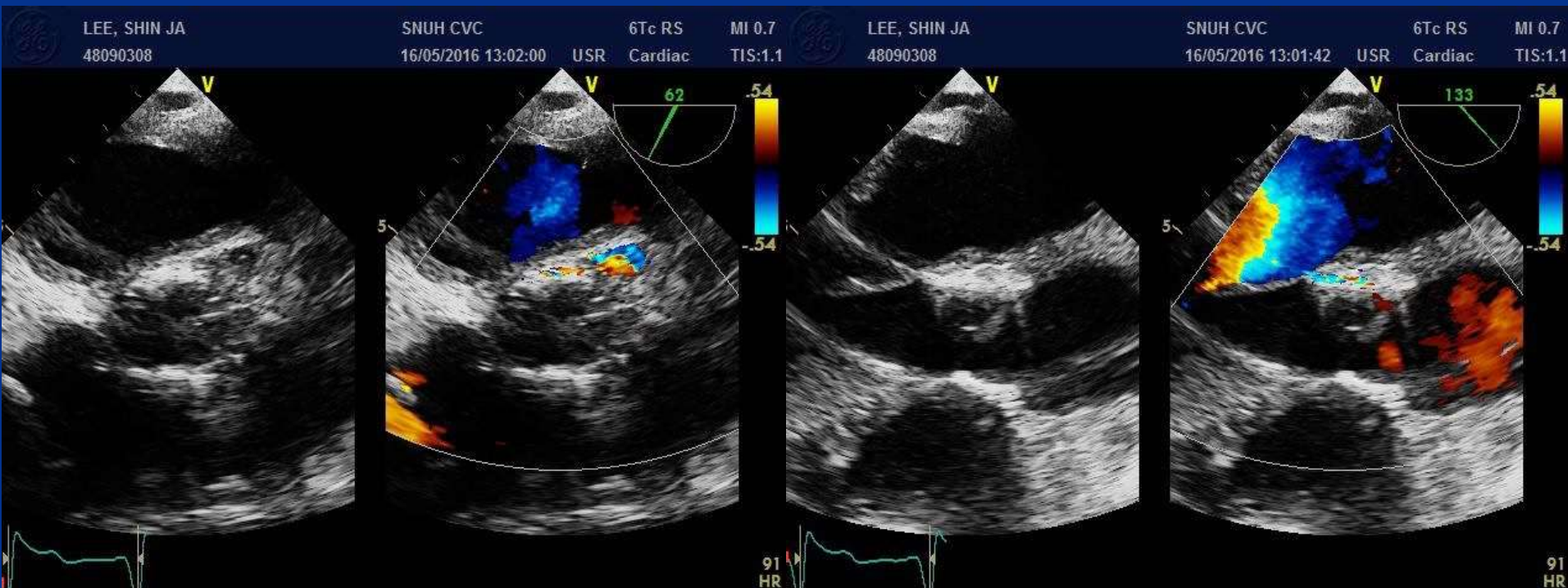
LAO 25



RAO 25 CAU 18

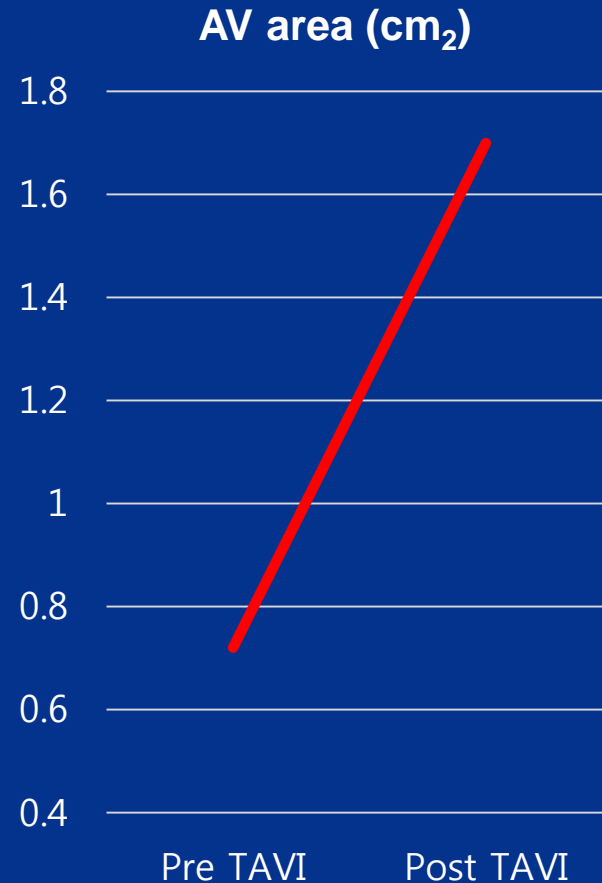
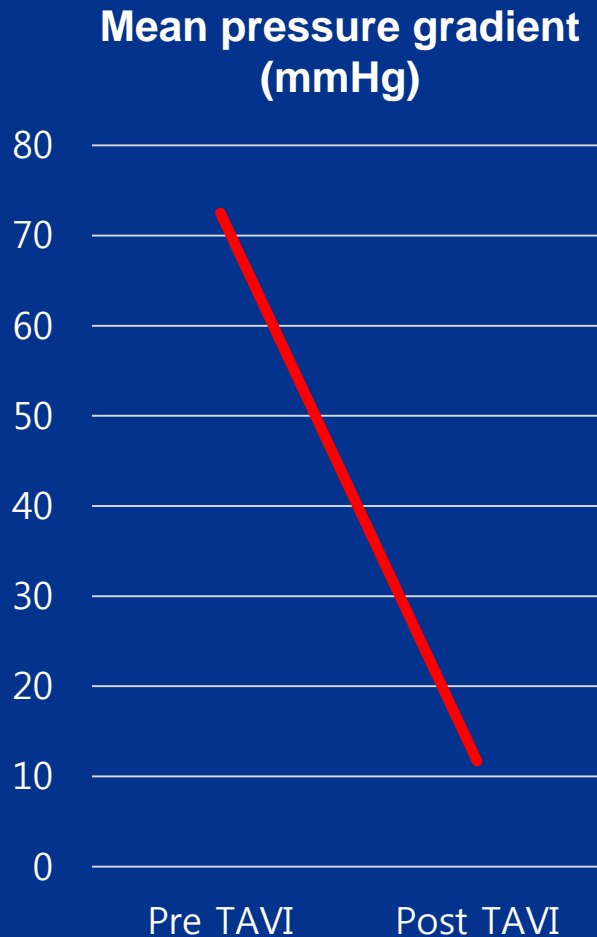
Emergent Sapien3 Case (F / 75)

TEE immediately after TAVI (2016-05-16)



Emergent Sapien3 Case (F / 75)

Aortic valve function immediately after TAVI (2016-05-16)



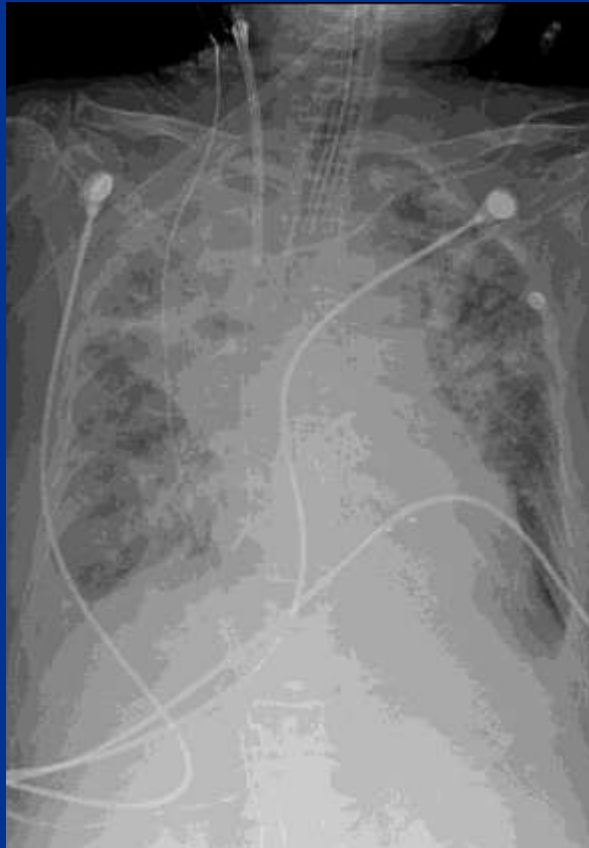
Emergent Sapien3 Case (F / 75)

Recovery after TAVI

5/15 (Admit)



5/16 (TAVI)



5/19 (Post D3)



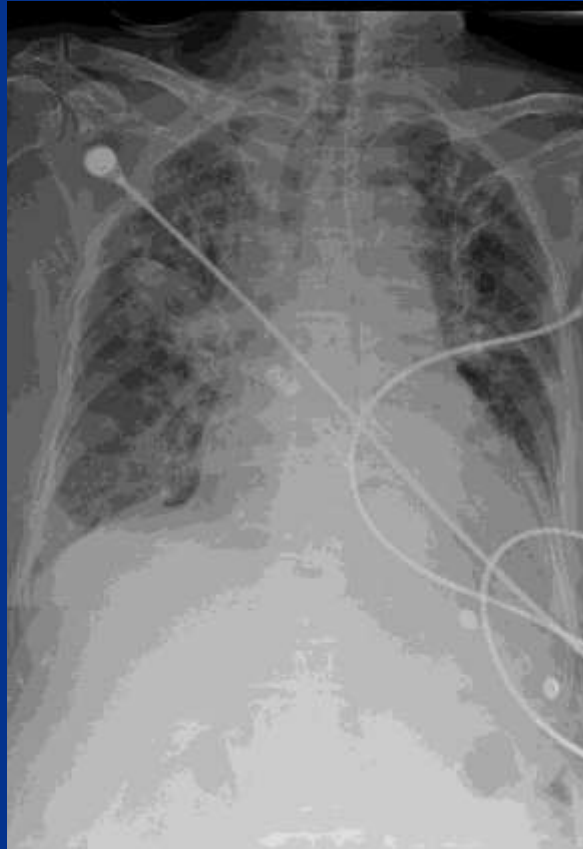
Emergent Sapien3 Case (F / 75)

Recovery after TAVI

5/21 (Post D5)

5/23 (Post D7)

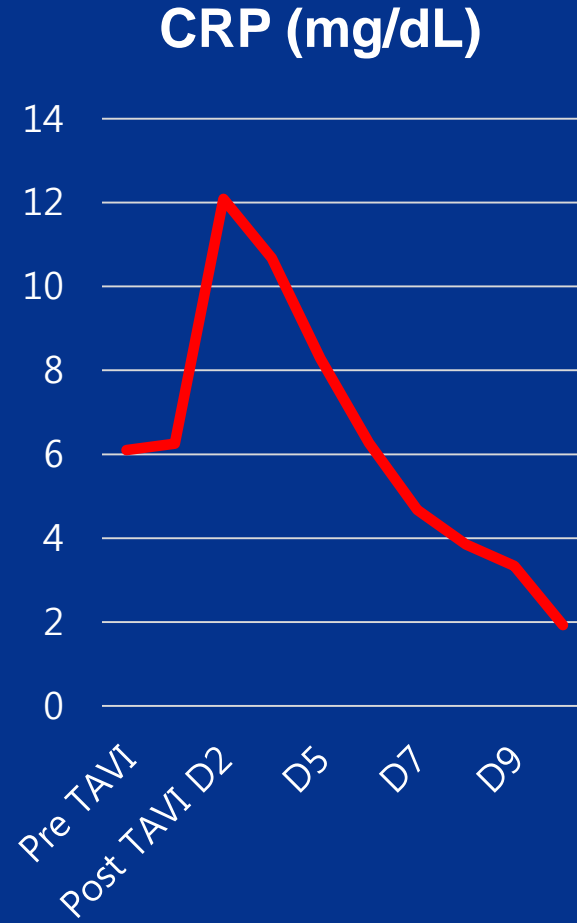
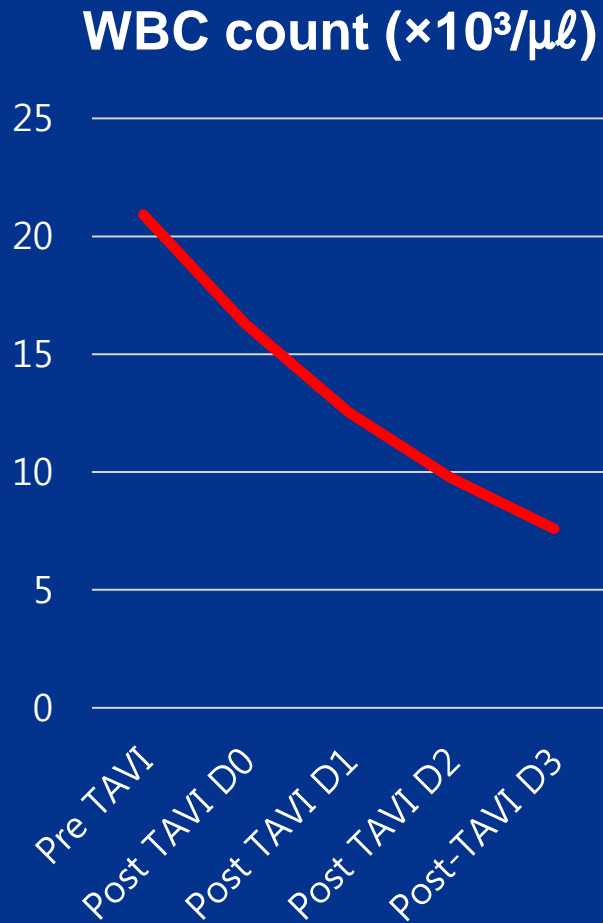
6/18 (Discharge)



Extubated

Emergent Sapien3 Case (F / 75)

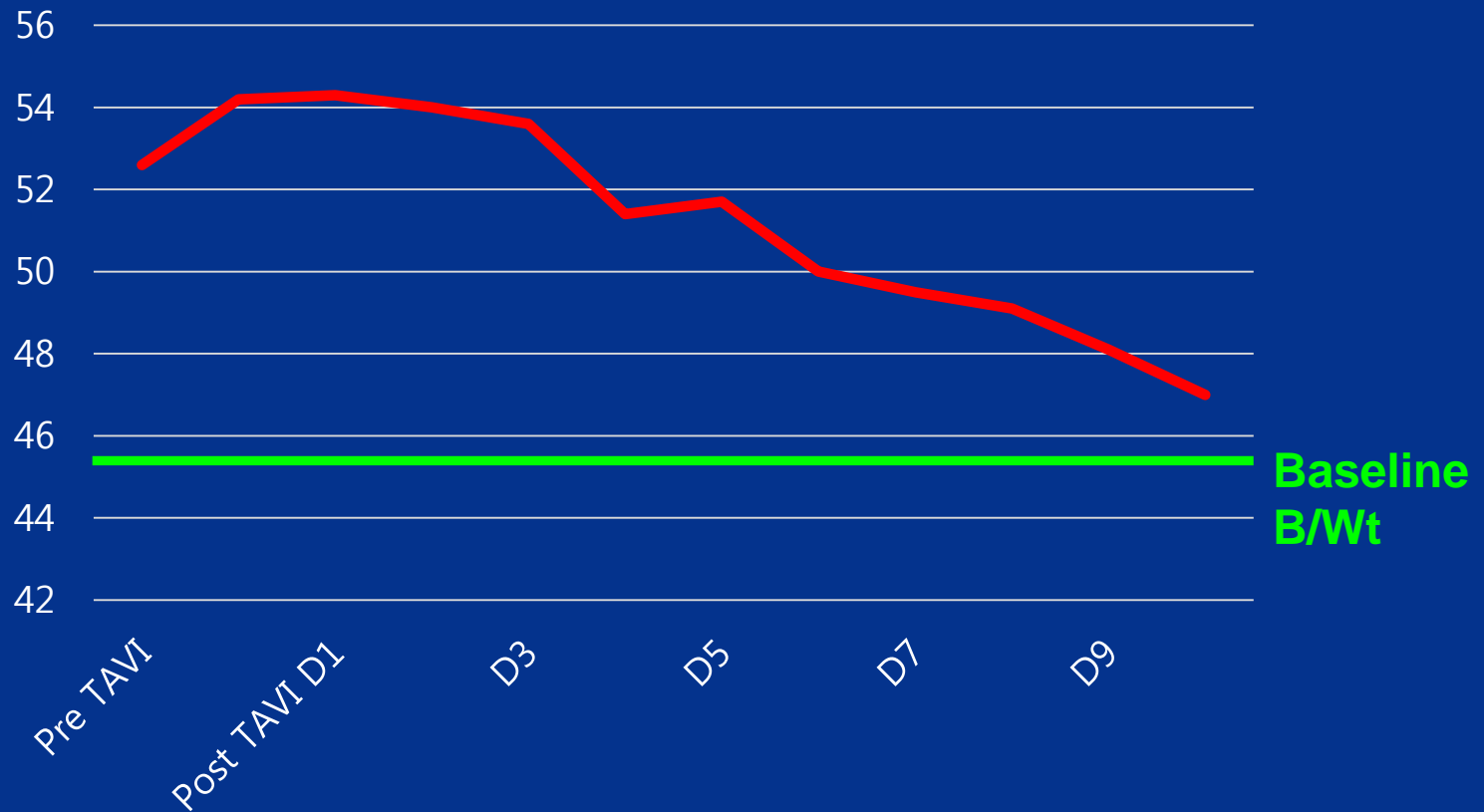
Recovery after TAVI



Emergent Sapien3 Case (F / 75)

Recovery after TAVI

Body weight (kg)



Emergent Sapien3 Case (F / 75)

TTE (2016-05-30) – post 2week



- **Post-TAVI 2 week echocardiography**

- Normal LV cavity (37/24mm), Normal LVEF 57%
- No regional wall motion abnormality
- Increased LV wall thickness, concentric LVH
- Well functioning prosthetic AV

Emergent TAVI

- Uncontrolled acute pneumonia & pulmonary edema on severe AS
- Cardiac arrest
- Emergent TAVI within a day
- Discharge at 3 weeks at normal performance without complication

TAVI

as an emergent tool
to normalize hemodynamics

septic shock
& cardiac arrest
& ECMO backup
on severe AS

Emergent Sapien3 Case (M / 68)

Under septic shock & ECMO coverage

- **Brief history**

- DM (+) HTN (+) ESRD on CAPD ('11~)
- Severe AS diagnosed 4 months ago
- DOE aggravated 1month ago
- **Catheter-related peritonitis**
- on cefazolin & ceftazidime in outside hospital

and

- transferred to SNUH (2016/5/22)

Emergent Sapien3 Case (M / 68)

Under septic shock & ECMO coverage

- **EchoCG (2016/5/22)**
 - Dilated LV cavity (51/46mm),
 - Depressed LVEF 37%
 - Severe AS with trivial AR, probably degenerative
 - AVA 0.8cm²
 - AV peak velocity 4.5 m/s
 - AV mean PG 49.7mmHg

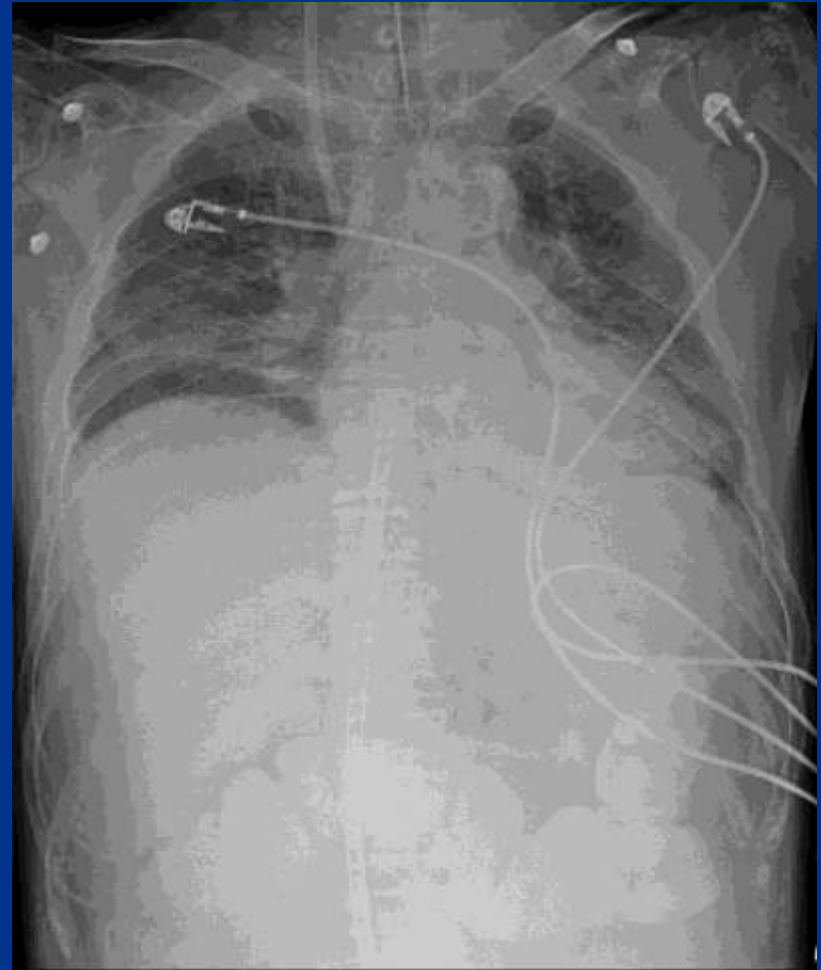
Hospital course

- Antibiotics treatment to peritonitis : not well-controlled
 - CRP 8.03
 - Systemic infection ; not controlled well d/t fragile status
 - Early features of sepsis emerged
- Cardiac arrest (2016.06.01) probably d/t sepsis ?
 - Recurrent pulseless monomorphic VT / VF despite amiodarone
 - VA-ECMO insertion performed
- Bedside Echocardiography
 - Global hypokinesia
 - Slightly enlarged LV cavity size (55/49)
 - aggravated systolic dysfunction (LVEF 25%)
 - Severe AS with mild AR

ICU admission & ECMO insertion (2016.06.01)



Intubated



On ECMO, CRRT

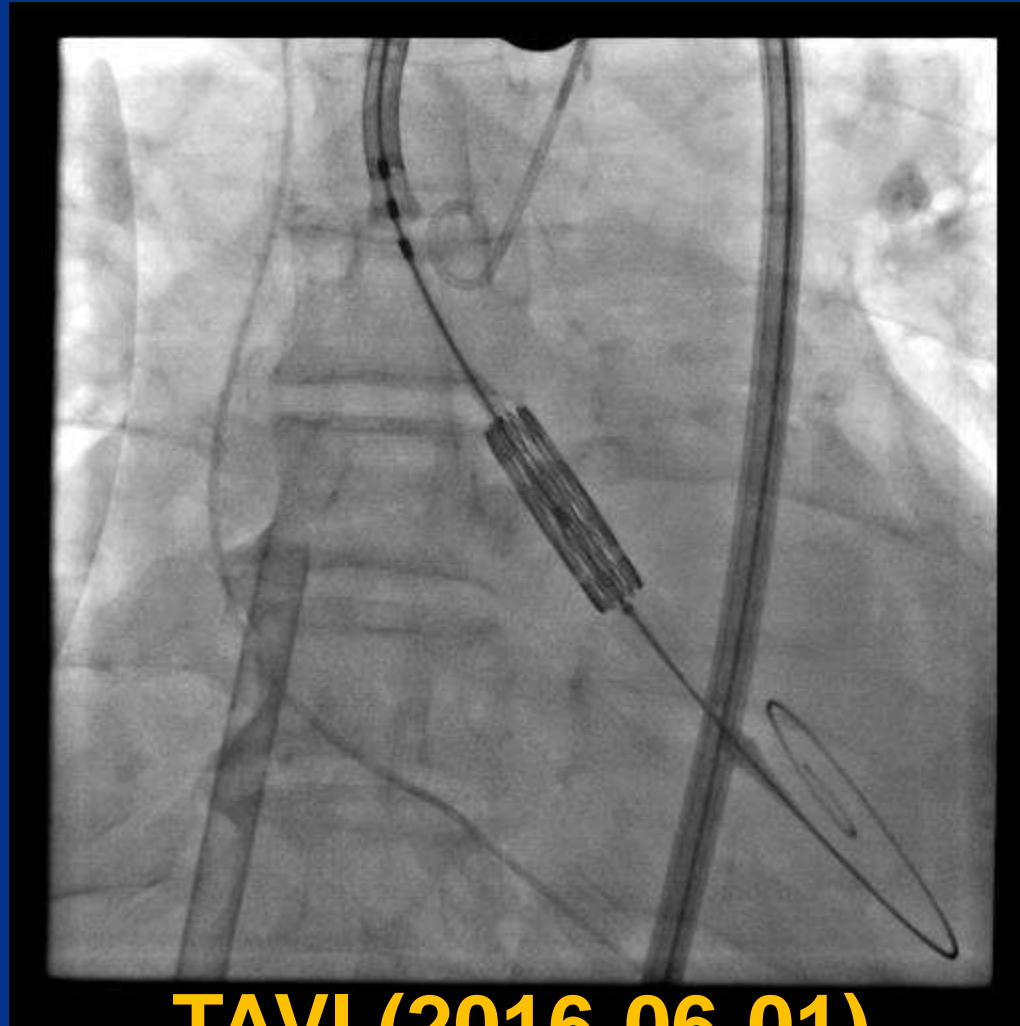
Emergent TAVI at the same day of septic shock & ECMO coverage



Aortography (AP CAU 5) before TAVI (2016-06-01)

Emergent Sapien3 Case (M / 68)

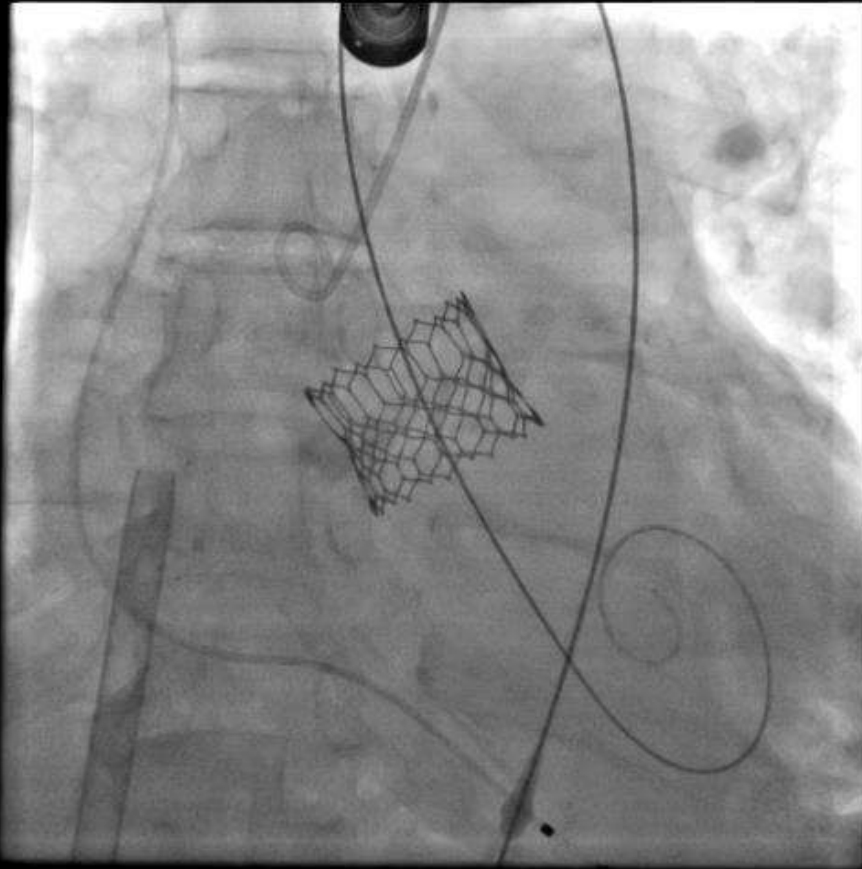
Under septic shock & ECMO coverage



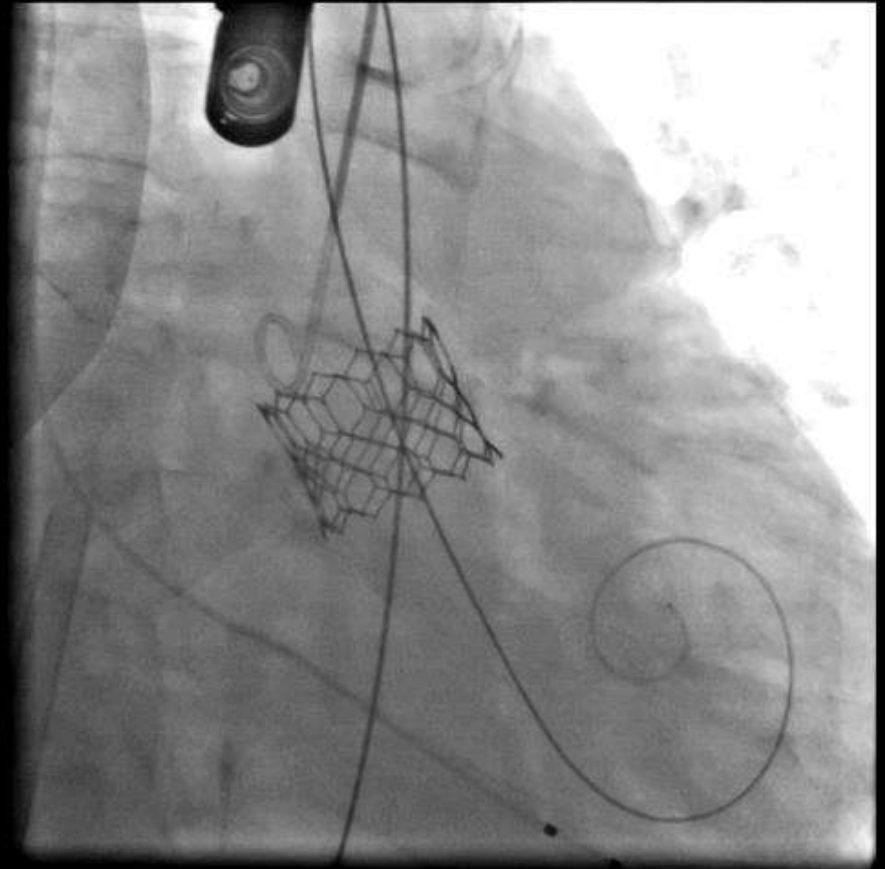
TAVI (2016-06-01)

Emergent Sapien3 Case (M / 68)

Under septic shock & ECMO coverage



AP CAU 15

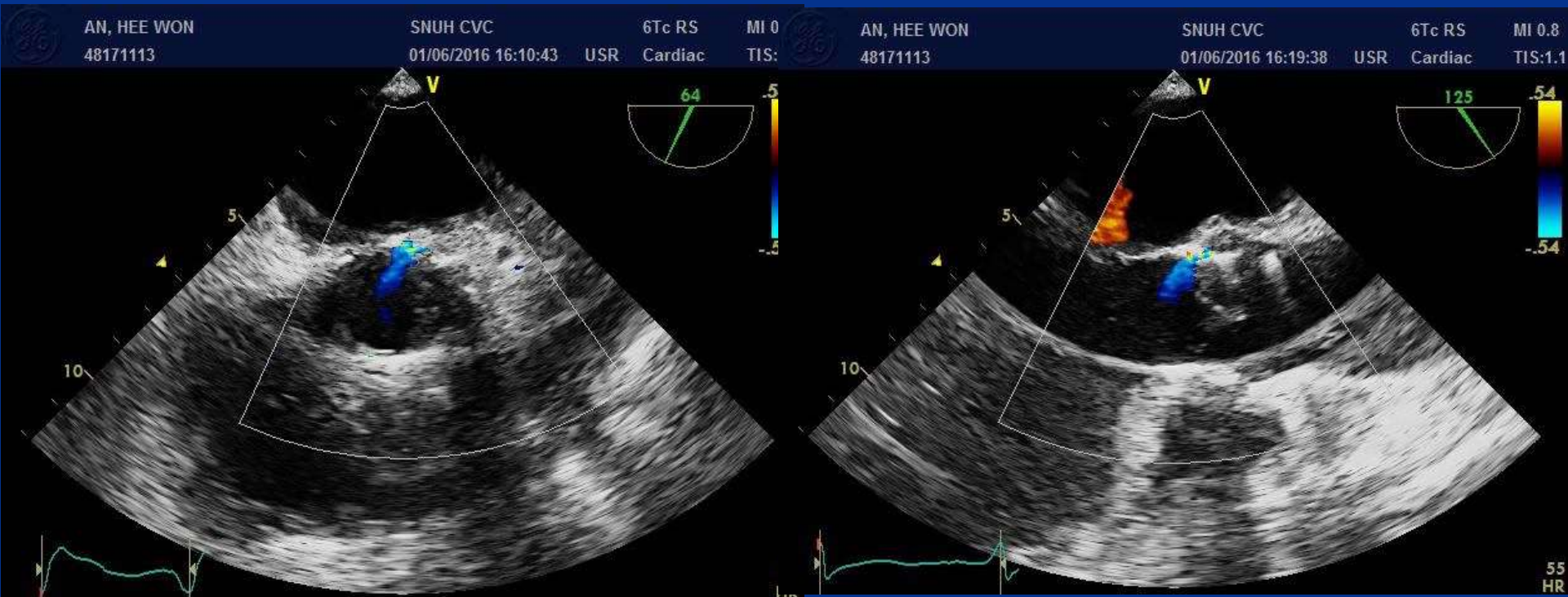


RAO 17 CAU 26

Emergent Sapien3 Case (M / 68)

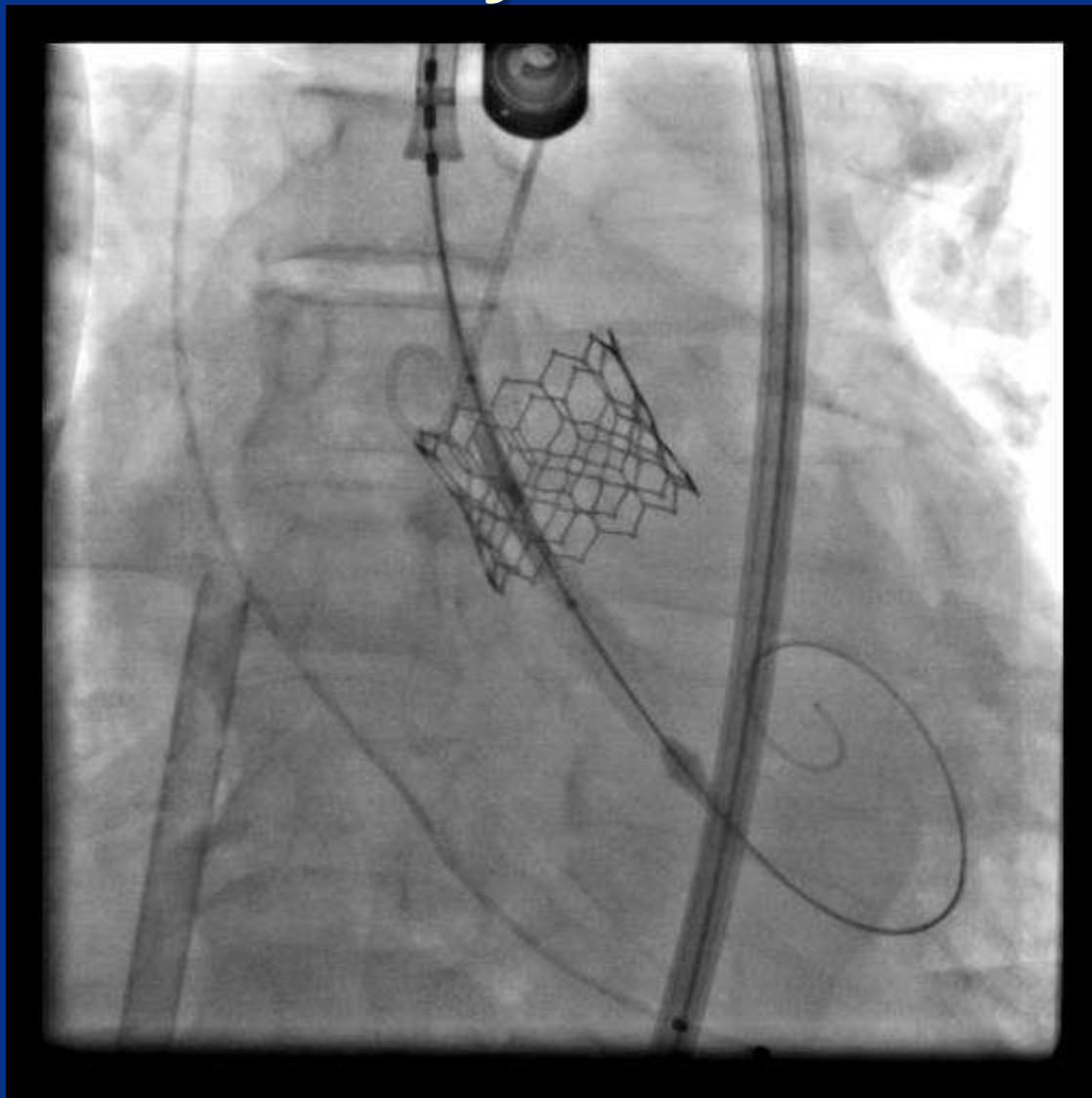
Under septic shock & ECMO coverage

TEE immediate-after TAVI



Emergent Sapien3 Case (M / 68)

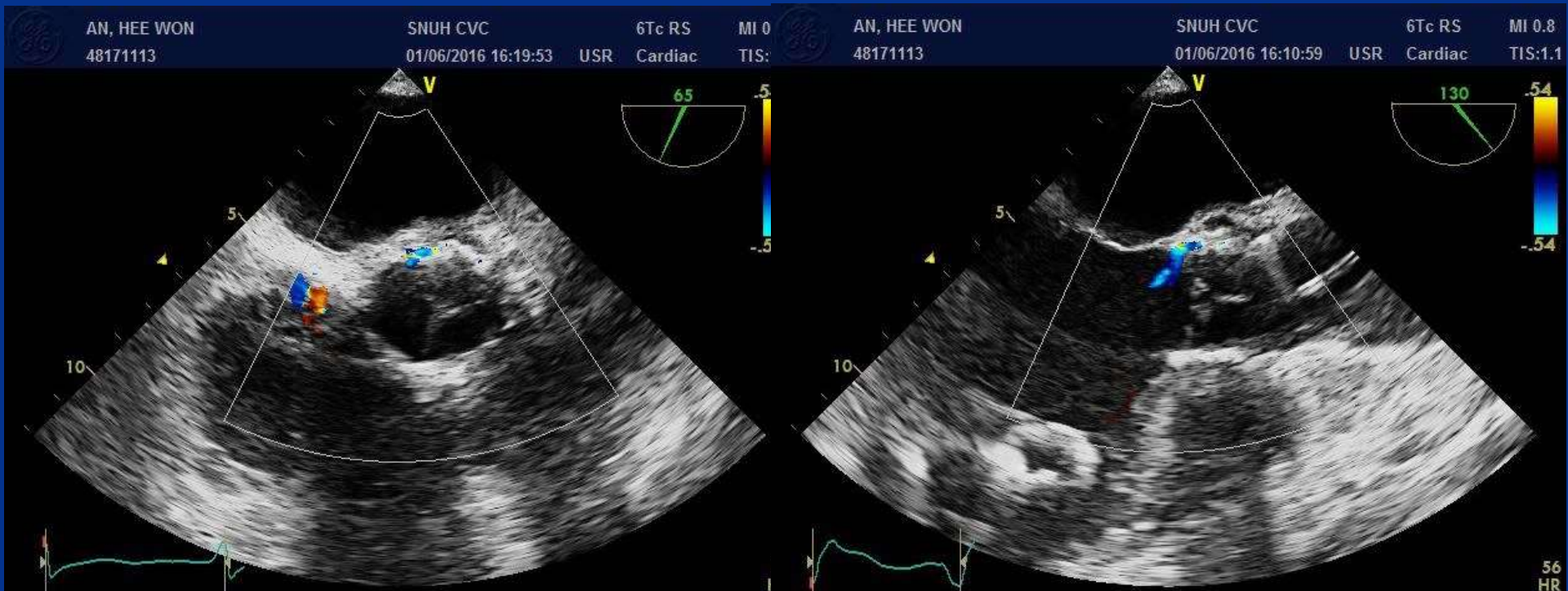
Post dilatation by SAPIEN balloon



Emergent Sapien3 Case (M / 68)

Under septic shock & ECMO coverage

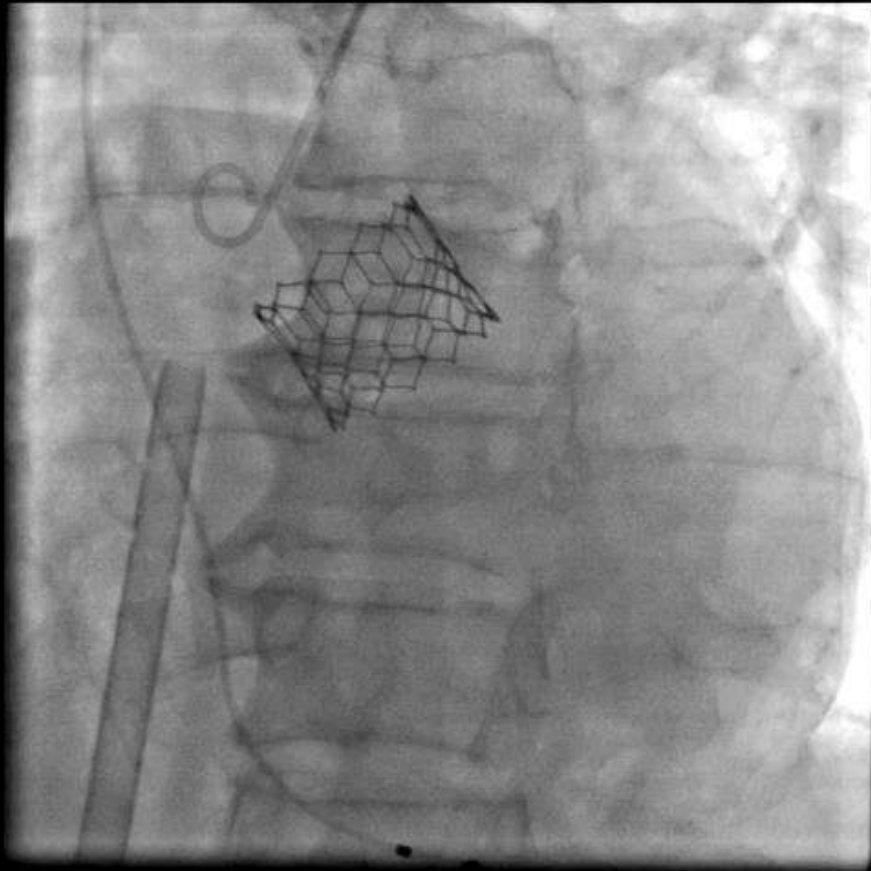
After adjunctive dilatation by SAPIEN balloon



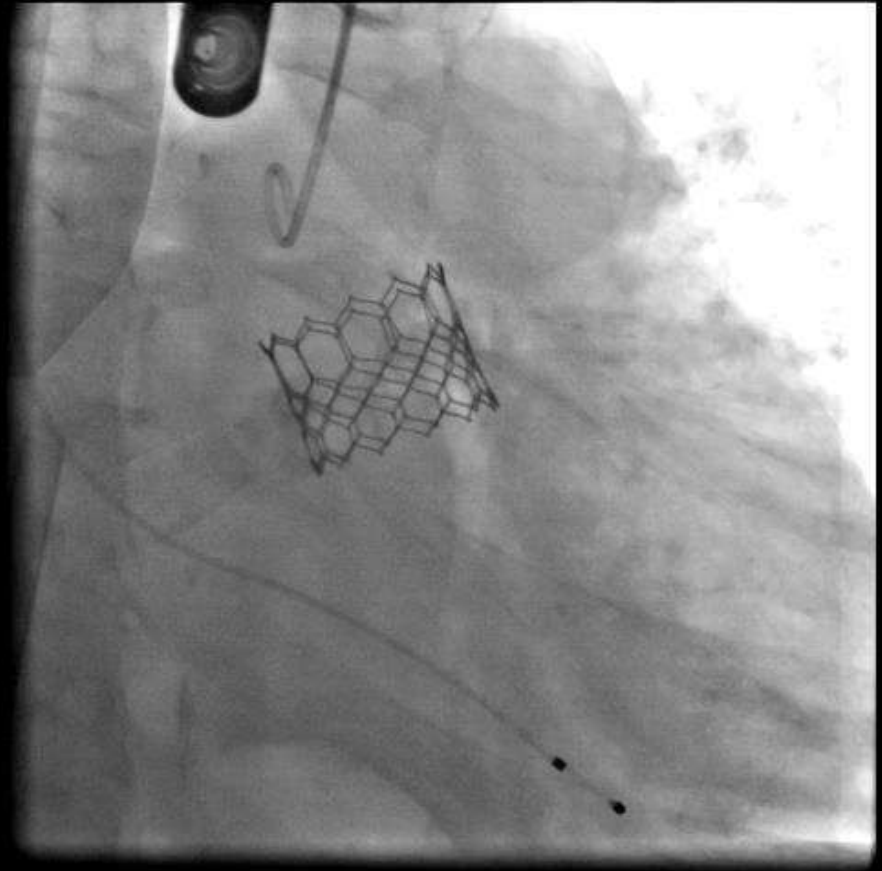
Emergent Sapien3 Case (M / 68)

Under septic shock & ECMO coverage

After adjunctive dilatation by SAPIEN balloon



LAO 20

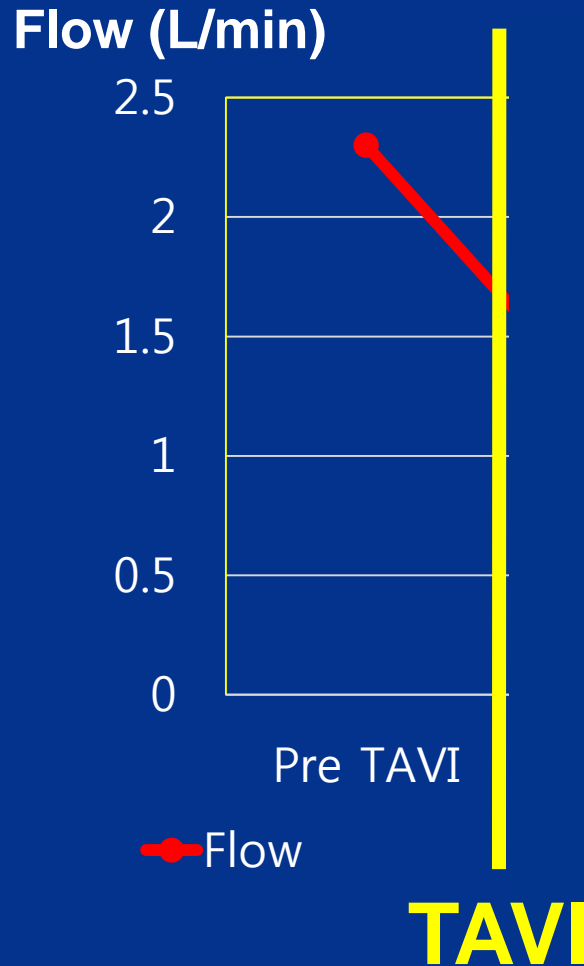


RAO 20 CAU 27

Emergent Sapien3 Case (M / 68)

Under septic shock & ECMO coverage

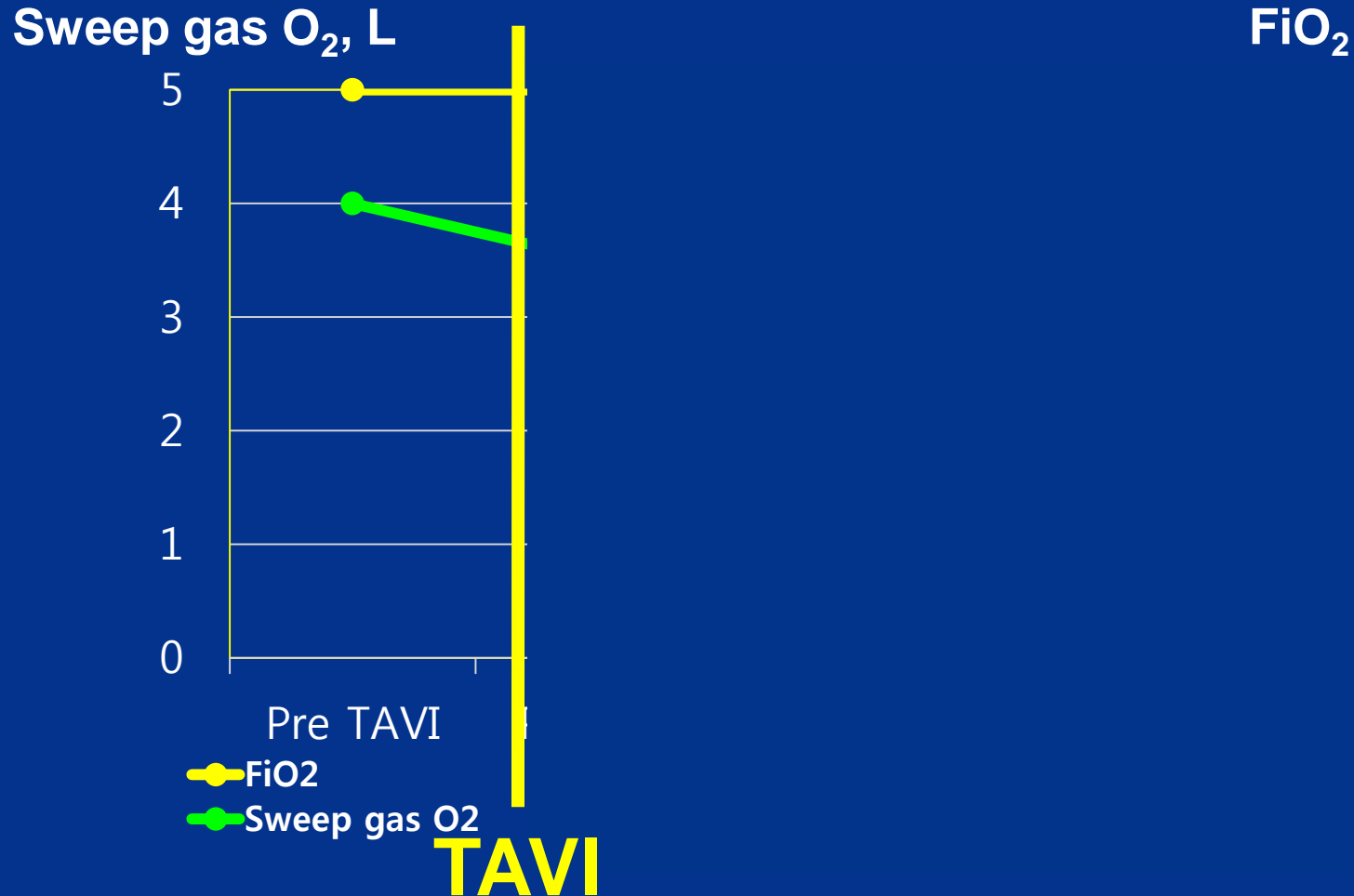
Weaning of ECMO after TAVI



Emergent Sapien3 Case (M / 68)

Under septic shock & ECMO coverage

Weaning of ECMO after TAVI



Emergent Sapien3 Case (M / 68)

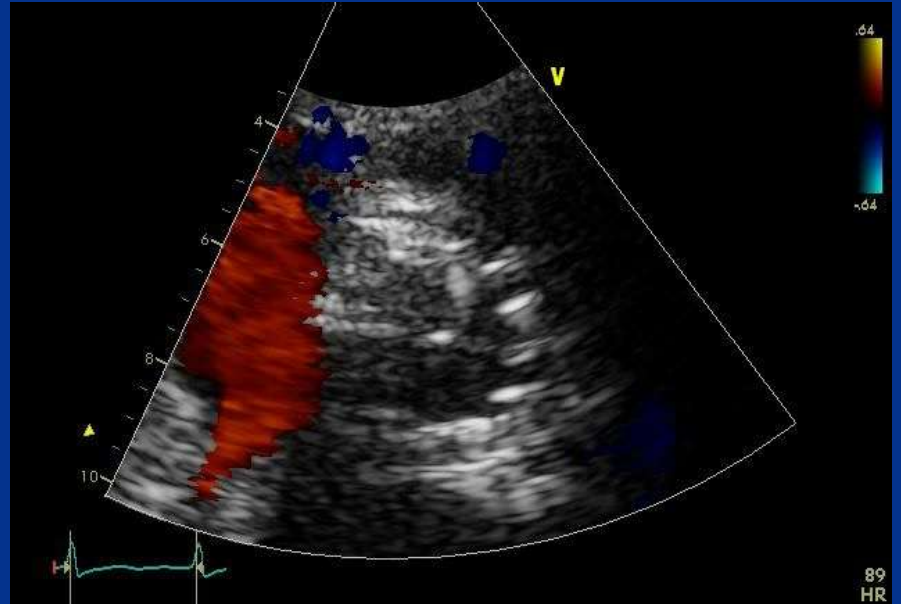
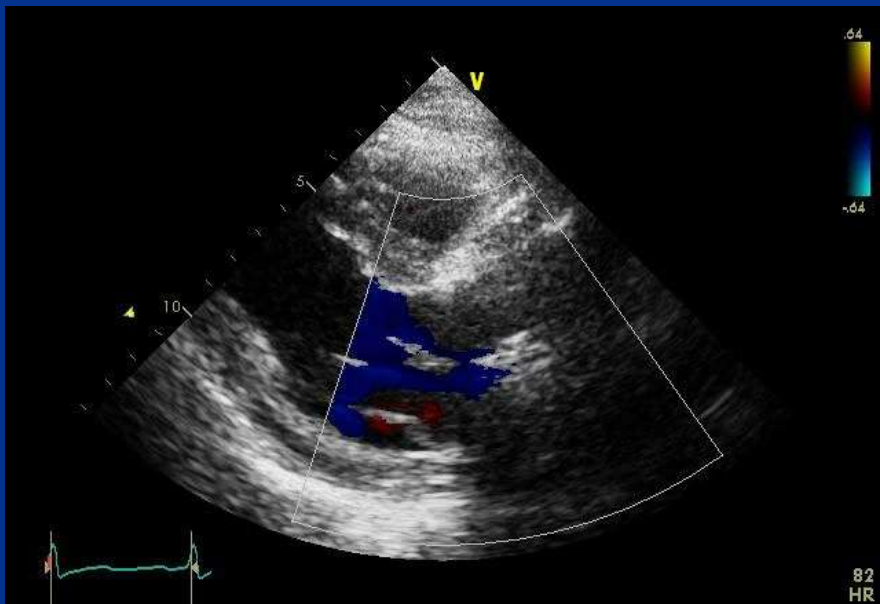
Under septic shock & ECMO coverage

Recovery from septic shock

- **Post-TAVI 3 weeks echocardiography**
 - **Normal LV cavity (49/37mm), LVEF 52%**
 - **Septal bouncing, otherwise no RWMA**
 - **Well functioning prosthetic AV**

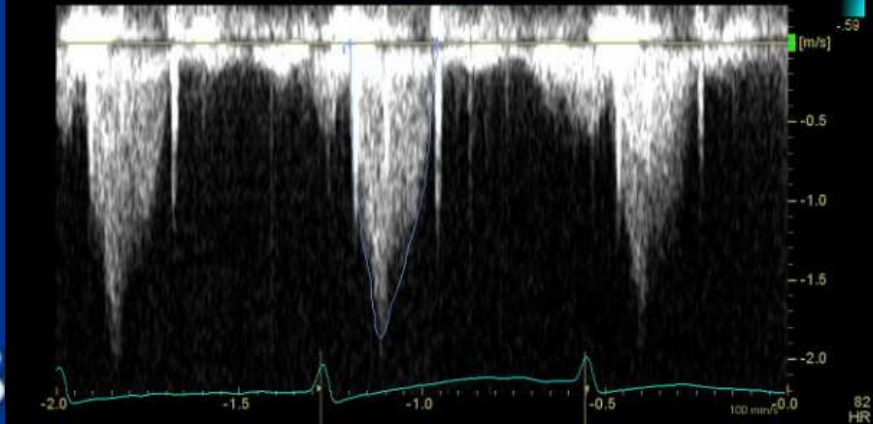
Emergent Sapien3 Case (M / 68)

Under septic shock & ECMO coverage

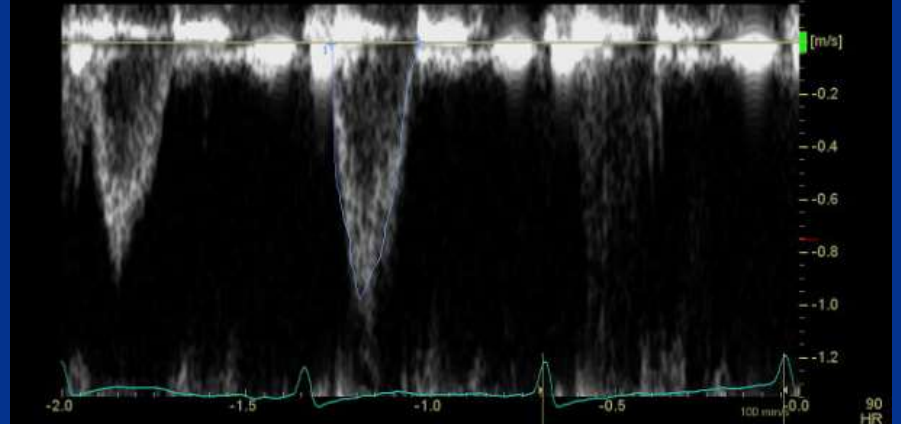
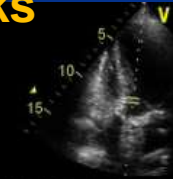


TTE (2016-06-24) post 3 weeks

AV Vmax	1.87 m/s
AV Vmean	1.25 m/s
AV maxPG	14.01 mmHg
AV meanPG	7.10 mmHg
AV Env.Ti	237.60 ms
AV VTI	29.76 cm



LVOT Vmax	0.98 m/s
LVOT Vmean	0.60 m/s
LVOT maxPG	3.84 mmHg
LVOT meanPG	1.80 mmHg
LVOT Env.Ti	237.60 ms
LVOT VTI	14.24 cm



Emergent TAVI

- Uncontrolled sepsis & shock on severe AS
- Cardiac arrest & ECMO
- Emergent TAVI at the same day
- Recovery to usual-baseline performance at 3 weeks

Emergent TAVI in a day of cardiac arrest on AS saves lives !

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