

# 28<sup>th</sup> International ACHD Symposium

Tackling & Transforming Outcome of Complex ACHD

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Fellow

## CATH LAB TO THE RESCUE

# Case

- 28, M, presented to OSH with several days of fatigue, malaise, fever (max 38.6C)
- No URI symptoms, no sick contacts, no vomiting or diarrhea
- No obvious recent cuts/skin lesions
  - RUE bruise 2 weeks ago → DC ASA
- No recent procedures
- Denies smoking, alcohol or IV drug use

# Case

- PA/VSD/confluent hypoplastic PAs
  - s/p LBTT shunt & unifocalization of LPA collaterals, RV-PAc
  - s/p RV-PAc revision, VSD closure, bilateral PAplasties at age 4 y
  - s/p RPA stent and PV implant
  - s/p RV-PAc and LPA stenting and TPVR (Melody) at age 19 y
- 22q11 deletion syndrome

# Case

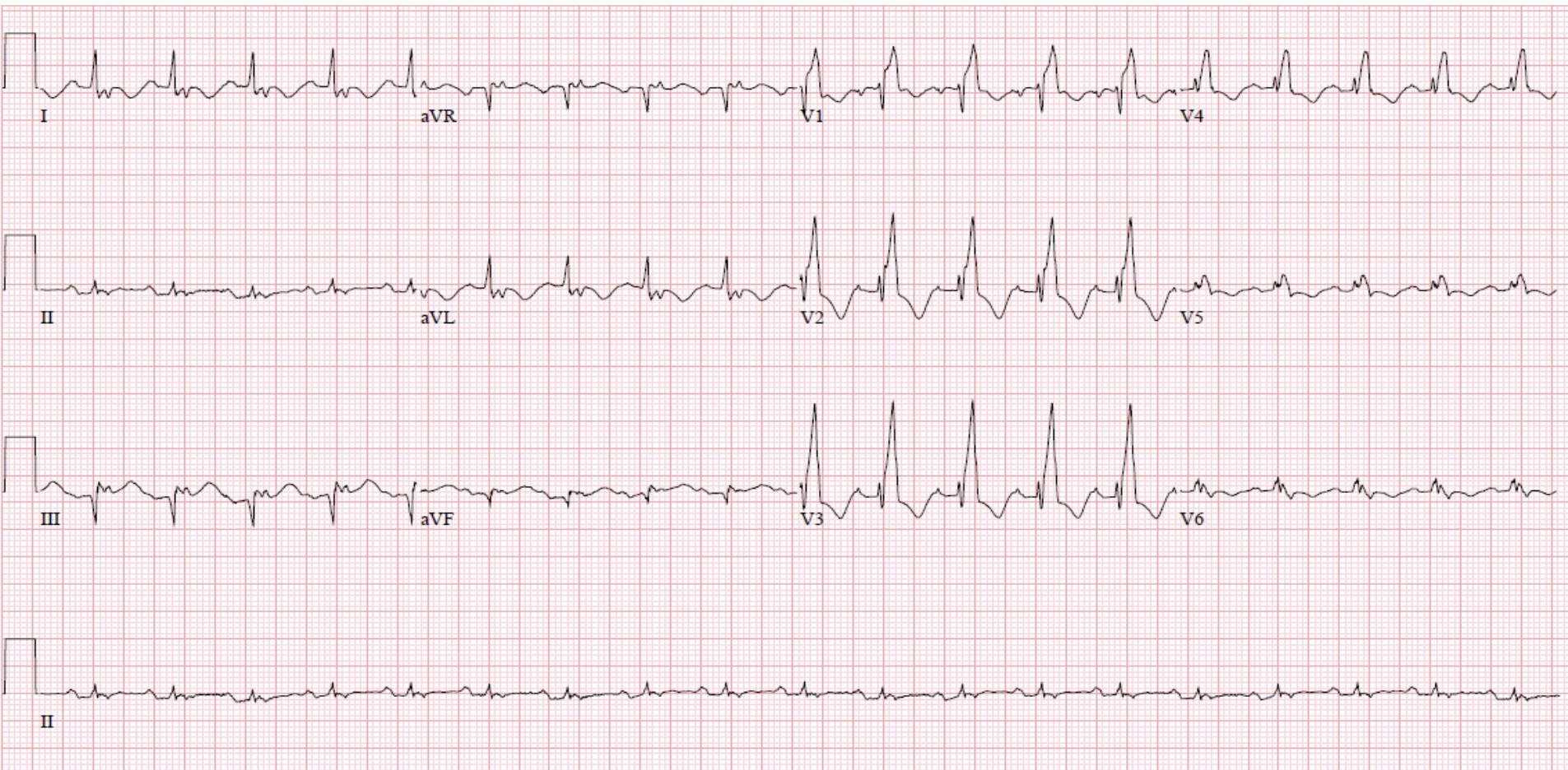
- VS acceptable
- Initial workup at OSH
  - Leukocytosis (>20K)
  - CXR reflective of previous surgeries but no acute intrapulmonary process
  - Viral panel negative
  - UCx negative
  - BCxs positive for MSSA (4/4)

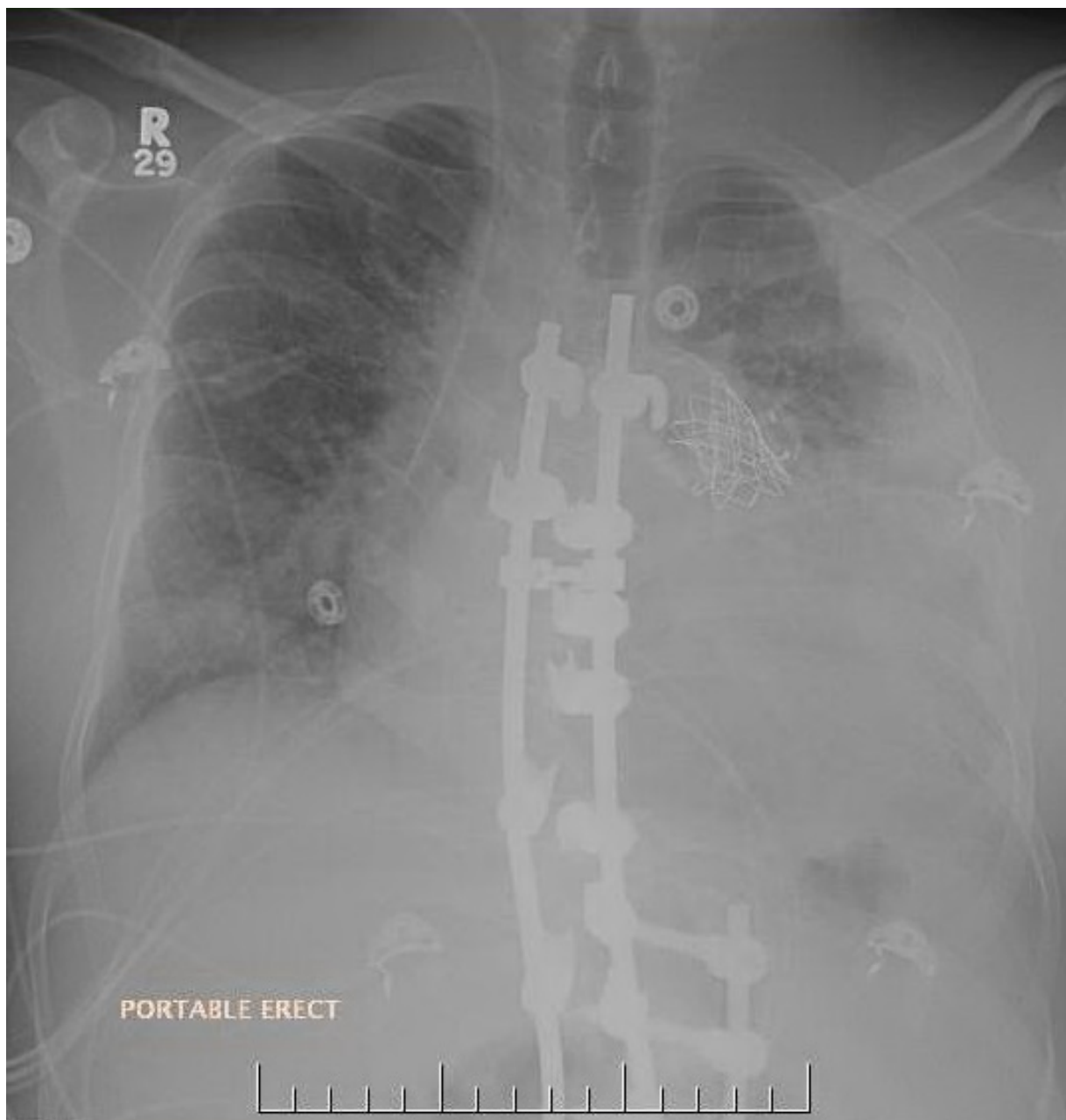


Vent. rate	116	BPM
PR interval	158	ms
QRS duration	146	ms
QT/QTc	394/547	ms
P-R-T axes	33 -7	127

Sinus tachycardia  
 Possible Left atrial enlargement  
 Right bundle branch block  
 Inferior infarct , age undetermined  
 T wave abnormality, consider lateral ischemia  
 Abnormal ECG

# NOTES:

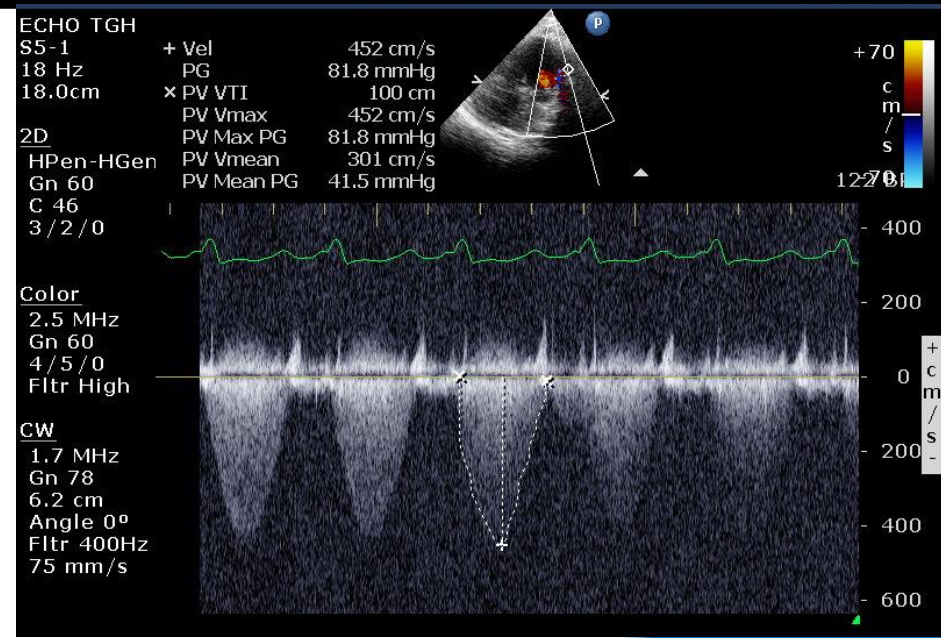
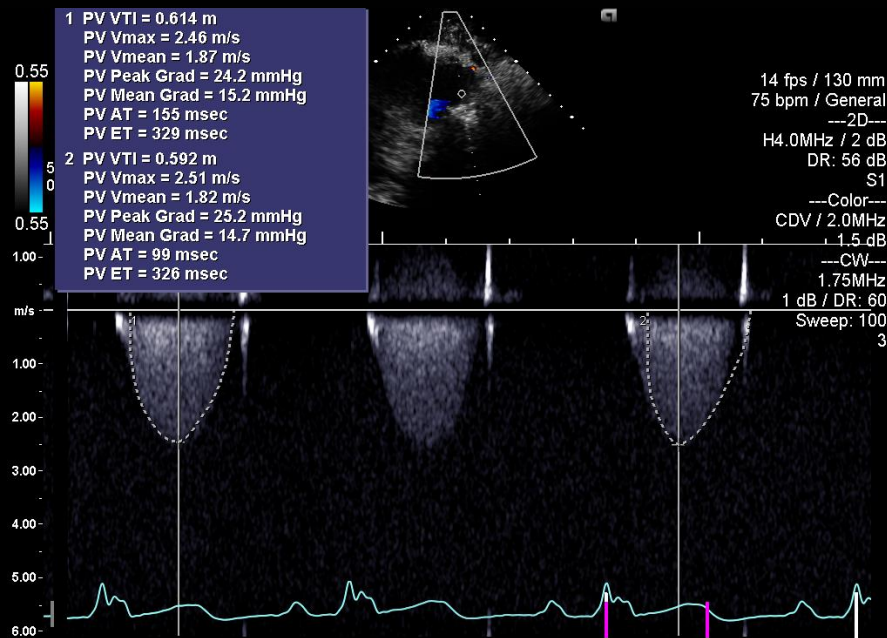
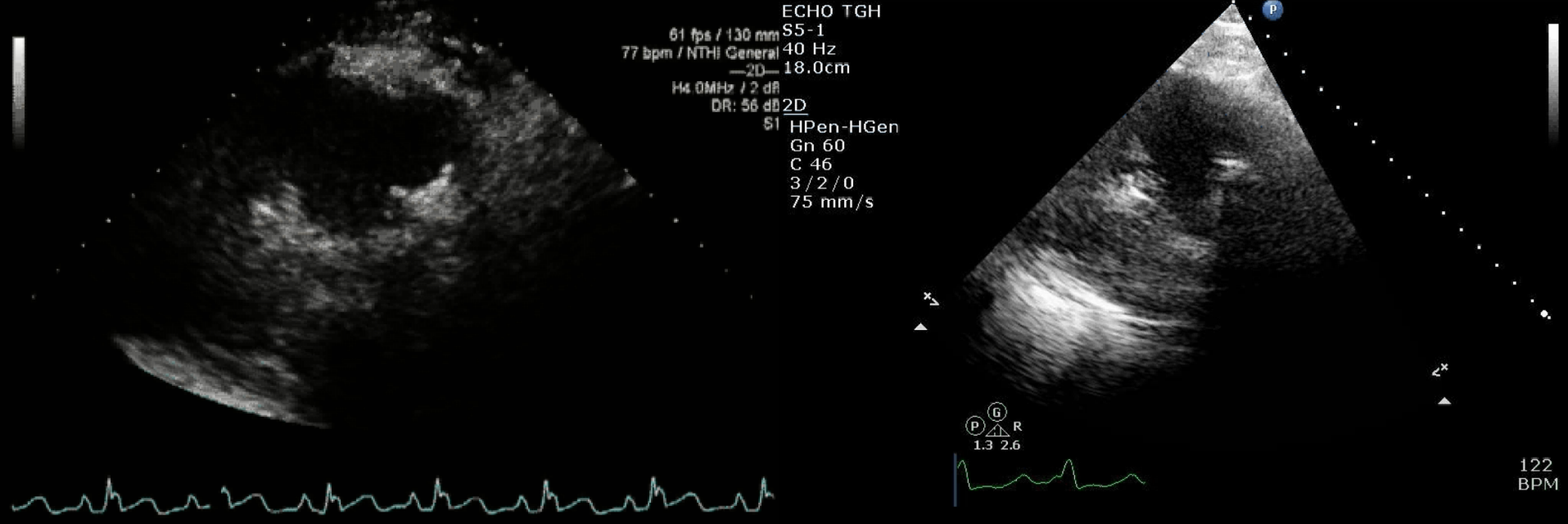




# Case

- TTE at OSH shows “vegetation on Melody valve”
- At TGH:
  - 37.6C, BP and HR acceptable, S 95% 2L
  - WBC 19.9, BNP 1741
  - Continued Cloxacillin and Rifampin
  - Obtained TTE



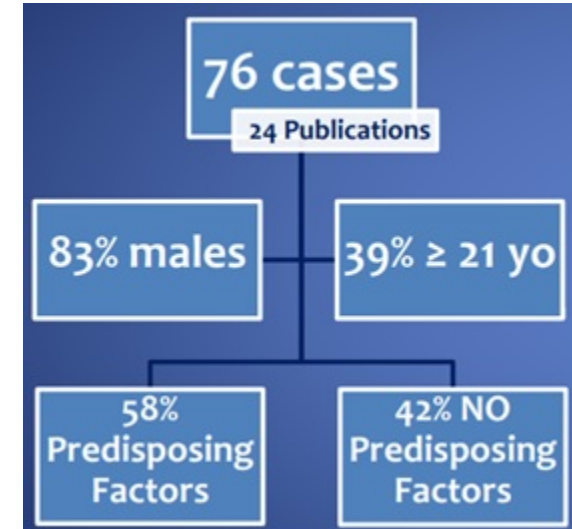


# Melody Valve and IE

Single Center Study	Pts implanted	Type of Valve/Conduit	Median Age (Years)	Number of IE cases	Median Follow-up (Years)	1-Year freedom from IE	4-Year Freedom from IE	Annualized rate (% per Patient-Year)	Multi-Center Study	Centers	Patients implanted	Median Age (Years)	Number of IE Cases	Median Follow-up (Years)	1-Year Freedom from IE	5-Year Freedom from IE	Annualized Rate (% per Patient-Year)
Wilson (Sapien) Toronto 2015	24	64% BPV	34	0	3.5	100%	100%	0%	COMPASSION (Sapien) 2016	7	69	25	4-5 (5.8-7.2%)	3	97%	86%	>1.8-2.3%
Malekzadeh-Milani (Melody) Paris 2015	86	X	24	5 (5.8%)	2.0	97%	91%	3.0%	Murray (Melody in Contegra) 2017	13	117	14.5	5 (4.3%)	3	100%	87%	2.0%
Buber (Melody) Boston 2013	147	17% BPV	19	14 (9.5%)	1.6	96%	86%	4.2%	Cheatham (Melody) 2015	5	150	19	14 (9.3%)	4.5	98%	89% (update: 96%)	2.2%
Cheung (Melody) Copenhagen 2013	42	X	19	6 (14.3%)	2.3			3.9%	McElhinney (Melody) 2013	22	311	18	16 (5.1%)	2.5	96% at 2 years	92% at 4 years	2.4%

# Melody Valve and IE

- Predisposing Factors
  - Previous IE (14%)
  - Dental Factors (22%)
  - Cutaneous or infectious factors (24%)
  - Median time from implant to IE: 16 months
  - Staph species (47%), Strep species (30%)
  - PIPG or PSEG >60 mmHg (34%)
  - Significant pulmonary regurgitation (2.6%)
  - Vegetation seen by imaging or path (46%)
  - Explant within 3 months (43%)
  - 9 pts (12%) died within 6 months (8/9 had Staph)



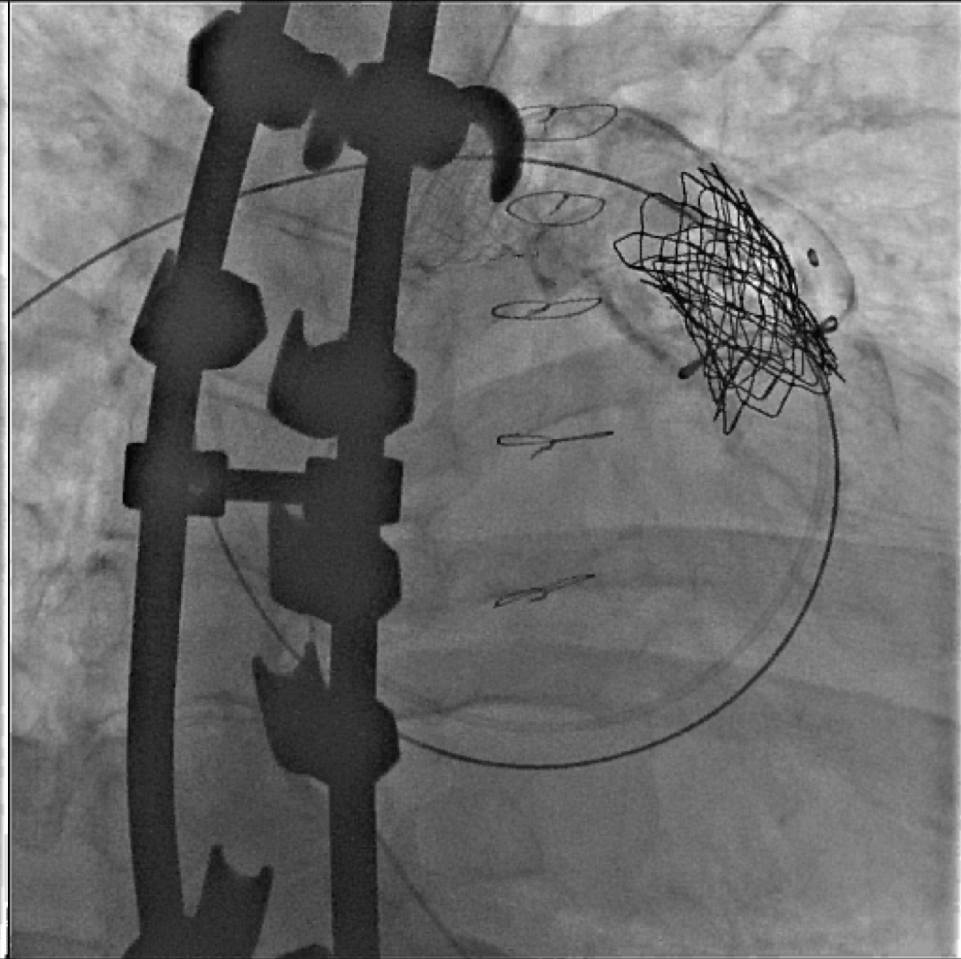
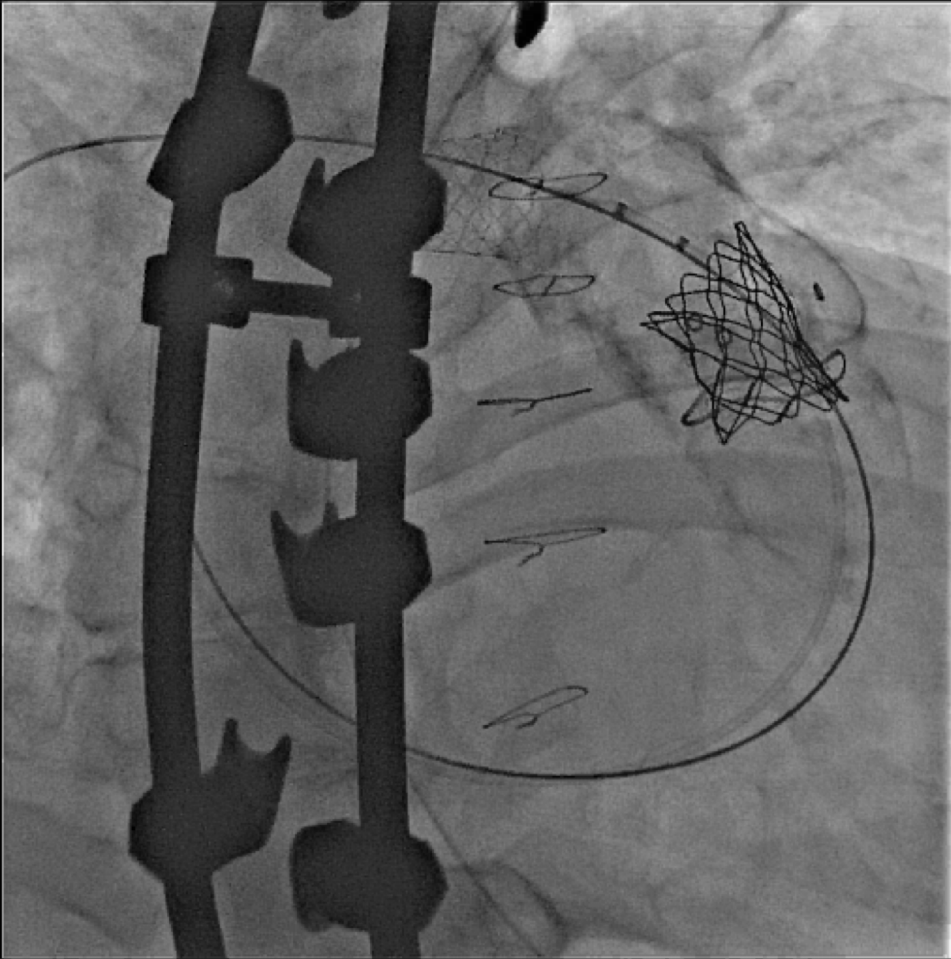
# Case

- Day 2:
  - Hemoptysis, desaturation (92% on 10L)
    - Transferred to CCU
      - Chest CT:
        - » Multifocal consolidations, lucencies suspicious of septic emboli, alveolar hemorrhage
    - BAL with 400 cc of blood/clot from RLL, epinephrine injection
  - Congestive hepatopathy and AKI



# Case

- Day 3:
  - Patient with worsening RV function requiring milrinone gtt for support
  - Patient with ventricular tachycardia requiring amiodarone gtt
  - Blood cultures repeatedly negative at TGH, T max 37.8C, WBC 30.6



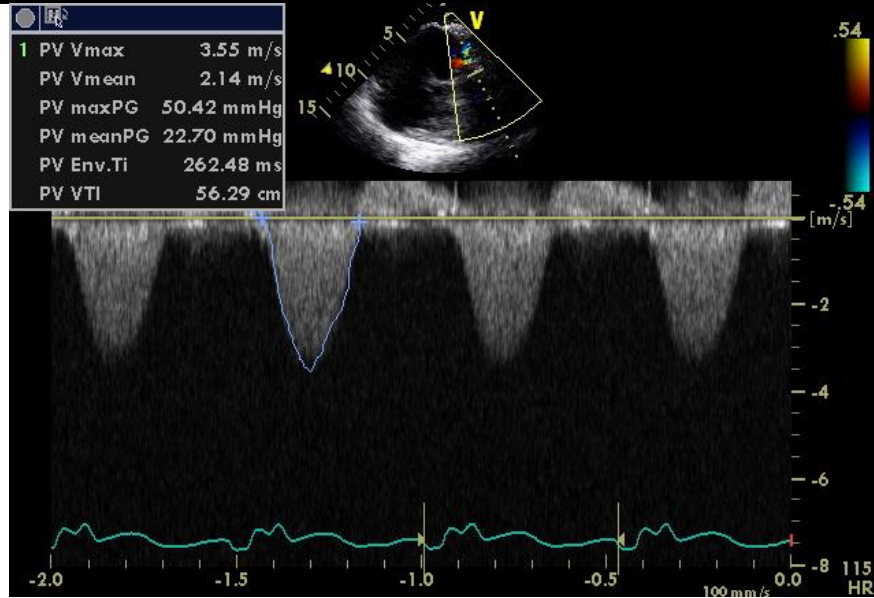
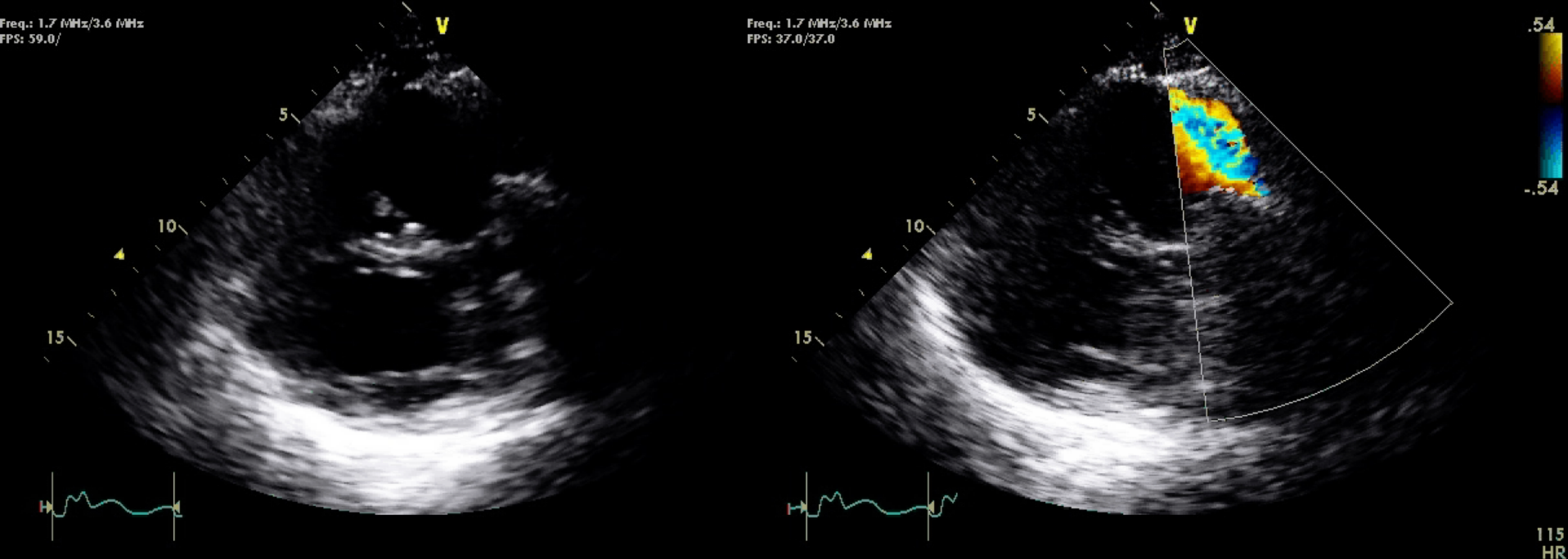
Direct stenting with a 45 mm 8 Zig CP covered stent mounted over a 22 mm Z-MED II balloon

RV 115/27, PA 30/20 → RV 77/18, PA 46/20

Gradient down from 85 mmHg to 31 mmHg

# Case

- Days 4-10:
  - Weaned off Milrinone gtt
  - Cessation of VT, amiodarone maintained
  - Resolution of congestive hepatopathy
  - Resolution of AKI
  - Resolution of hemoptysis
  - Afebrile
  - WBC 11.2, lactate normal



# Case

- Day 11:
  - 5<sup>th</sup> sternotomy
  - Severely calcified homograft explanted, severely calcified branch PA debrided and reconstituted with 20 mm Goretex, 23 mm pulmonary homograft applied to RV-PA connection, and VSD patch inspected with one vegetation debrided
  - Post operative coagulopathy requiring blood products transfusion

# Case

- Days 12-24:
  - Full recovery including kidneys and liver
  - Diuresis, ASA, Metoprolol
  - Discharged home to complete an 8 week course of IV ABx
- 18 months later:
  - Patient doing great, no symptoms, got promoted at workplace (fast-food chain), compliant with ASA and SBE ppx

# Take Home Points

- SBE ppx indefinitely post TPVR
- Good dental and personal hygiene
- ASA indefinitely post TPVR
  - Abrupt cessation → ↑IE
- Awareness of signs and symptoms of IE



# Take Home Points

- Importance of a multidisciplinary approach to problem solving
- Cath lab and OR can complement each other
  - Simultaneous versus sequential hybrid procedures
    - Set yourself up for success

# Thank you for your attention

