# Left Sided AngioVAC, ECMO, ViV TMVR, ViV TAVR

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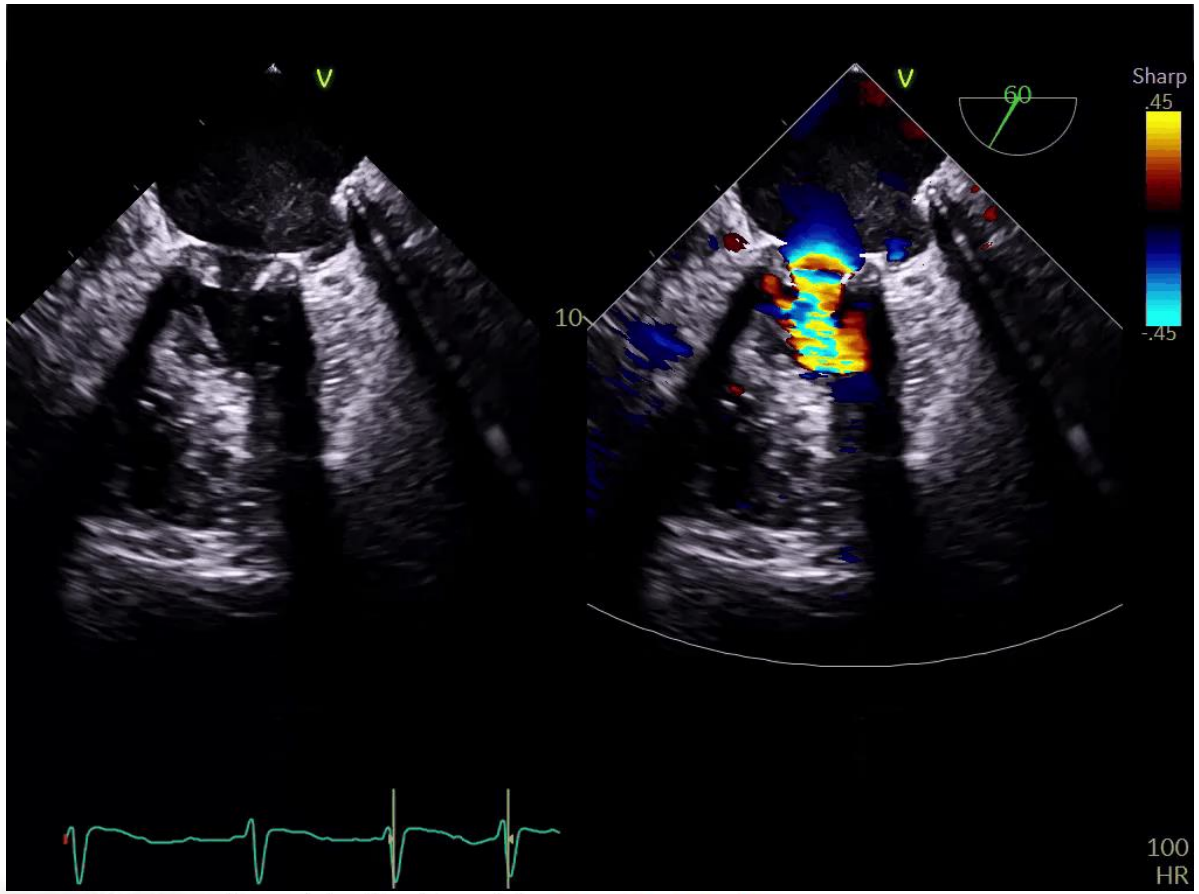
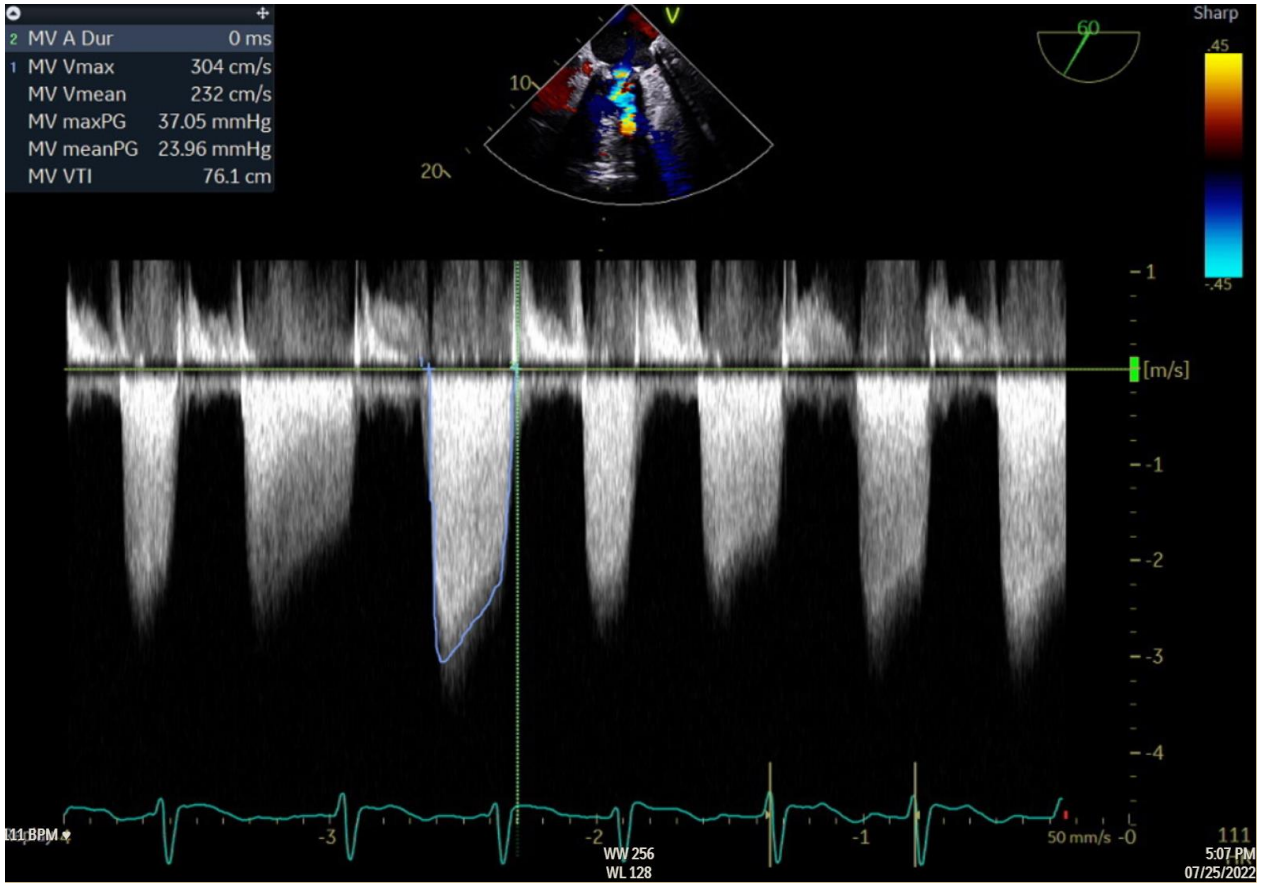
**Palmetto General Hospital Structural Heart Program**


# Case Presentation

- 82-year-old gentleman with past medical history of paroxysmal atrial fibrillation (not on AC), subdural hemorrhage status post embolization (07/25/2022), right choroid plexus aneurysm status post clipping (2017), congestive heart failure with intermediate ejection fraction, aortic insufficiency status post AVR (2012) and mitral regurgitation status post MVR (2012) presented with dyspnea on exertion to Palmetto General Hospital. Found to be in heart failure exacerbation.

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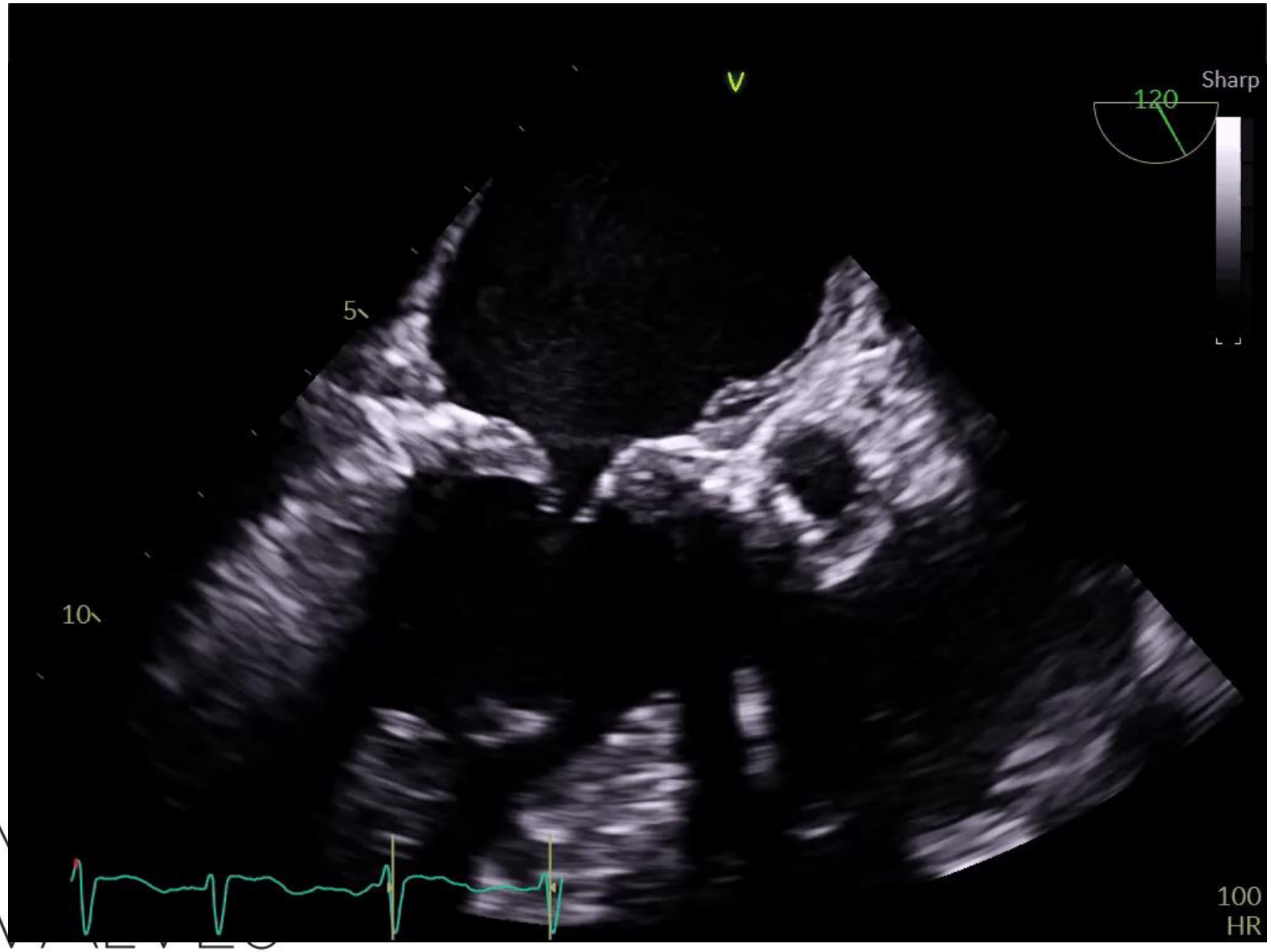


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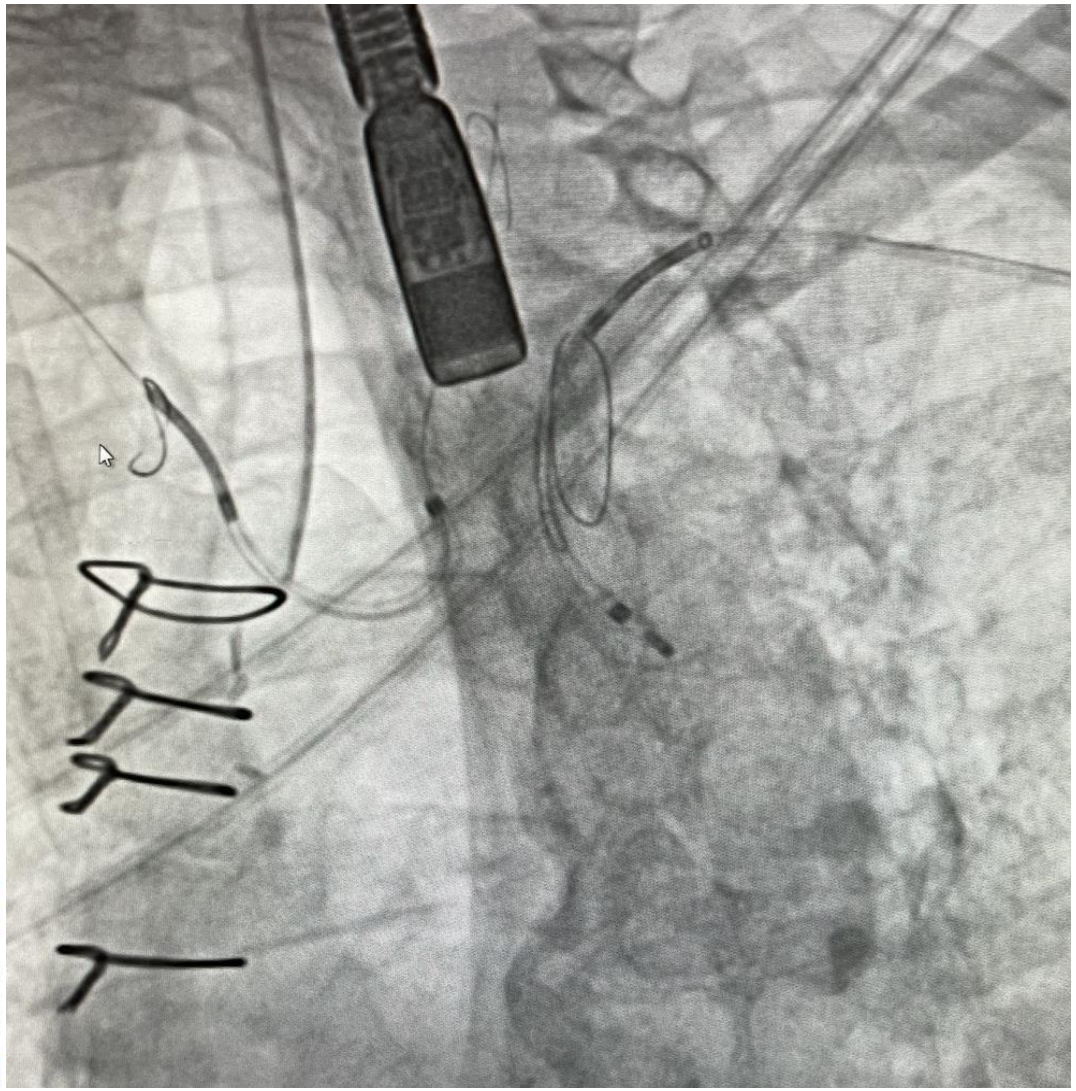
# Clinical decision

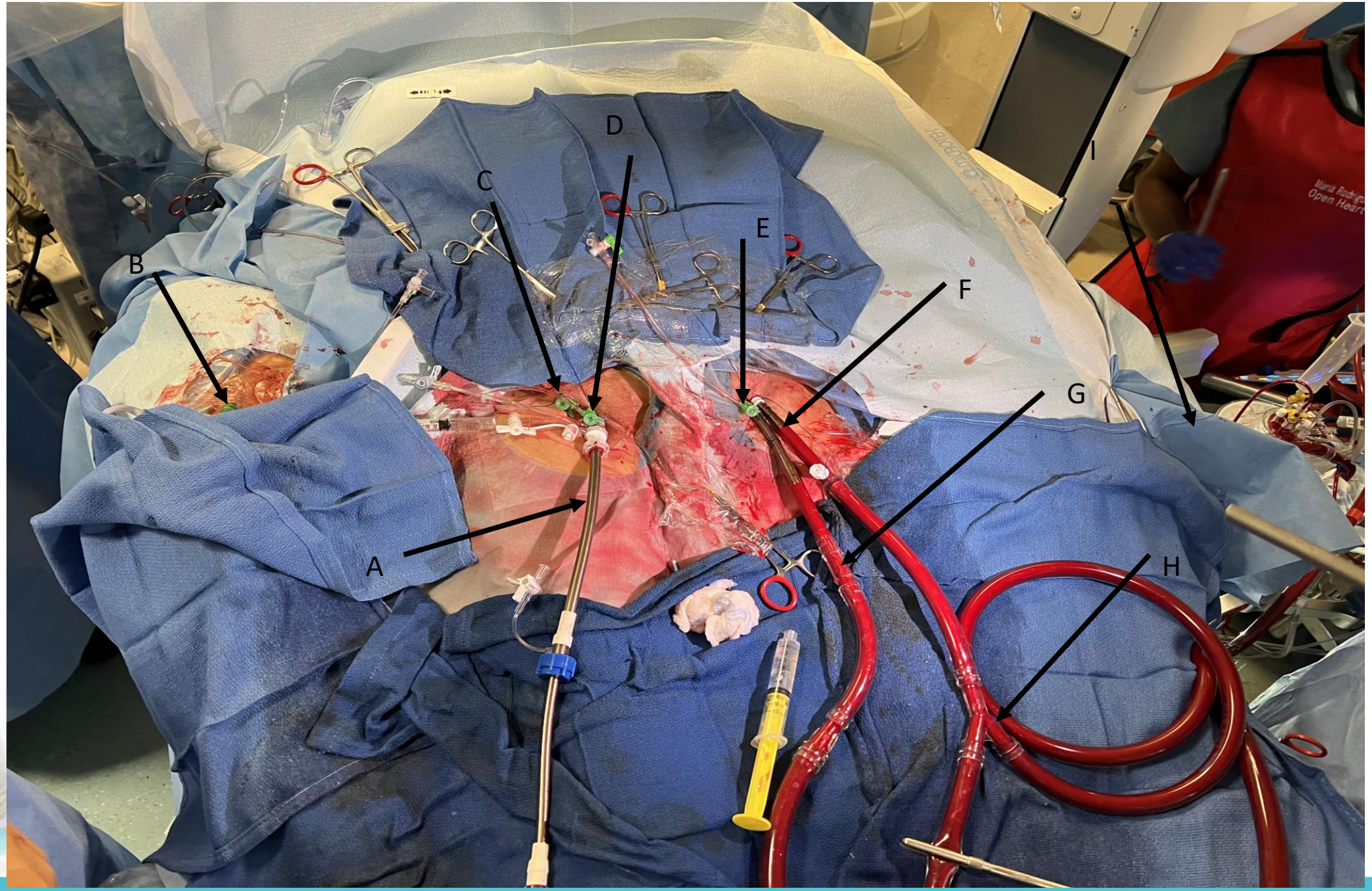
- Multidisciplinary Team approach
  - Cardiothoracic Surgeon Consultation
  - Interventional/Structural Cardiology Consultation
  - Neurosurgery Consultation
- Consensus Clinical Decision
  - High Risk for surgical approach
  - Decision for transcatheter left atrial Angio VAC with sentinel protection followed by Mitral ViV transcatheter replacement with two simultaneous bypass circuits (risk of MV obstruction by clot)

# Procedure plan: First Part

- General sedation
- Ultrasound guided access in right radial, left radial, RCFA, LCFA, RCFVx2, LCFV x 2 (venous accesses for TSP and SVC ECMO cannula, secondary for possibility of snare or pacer usage)
- Right radial sentinel embolic protection with a basket in the innominate and left common carotid
- Left radial sentinel embolic protection with basket placed in the left subclavian for vertebral and subclavian protection
- VA ECMO with LCFV-25Fr cannula in the SVC and 17Fr arterial cannula in the LCFA (first pump)
- AA ECMO via RCFV access in a transeptal manner with our 26Fr angio VAC system in the left atrium with a Y connector spliced into our LCFA 17 Fr return (second pump)

# Cerebral Protection




A
B
C
D
E
F
G
H
I

# Procedure details

- Transeptal puncture utilizing Baylis radiofrequency – in mid position for left sided angio VAC and valve in valve, stiff versacross wire in LUPV for delivery of angiovac system
- Balloon septostomy of the intra-atrial septum with a 12 x 40 mm peripheral balloon
- 26F angio VAC of LA free wall clot with complete removal
- Transcatheter mitral valve replacement (ViV) with an Edwards Sapien S3 29 mm  valve (safari in LV after clot removed, deployed valve on full bypass)


Derived


Derived

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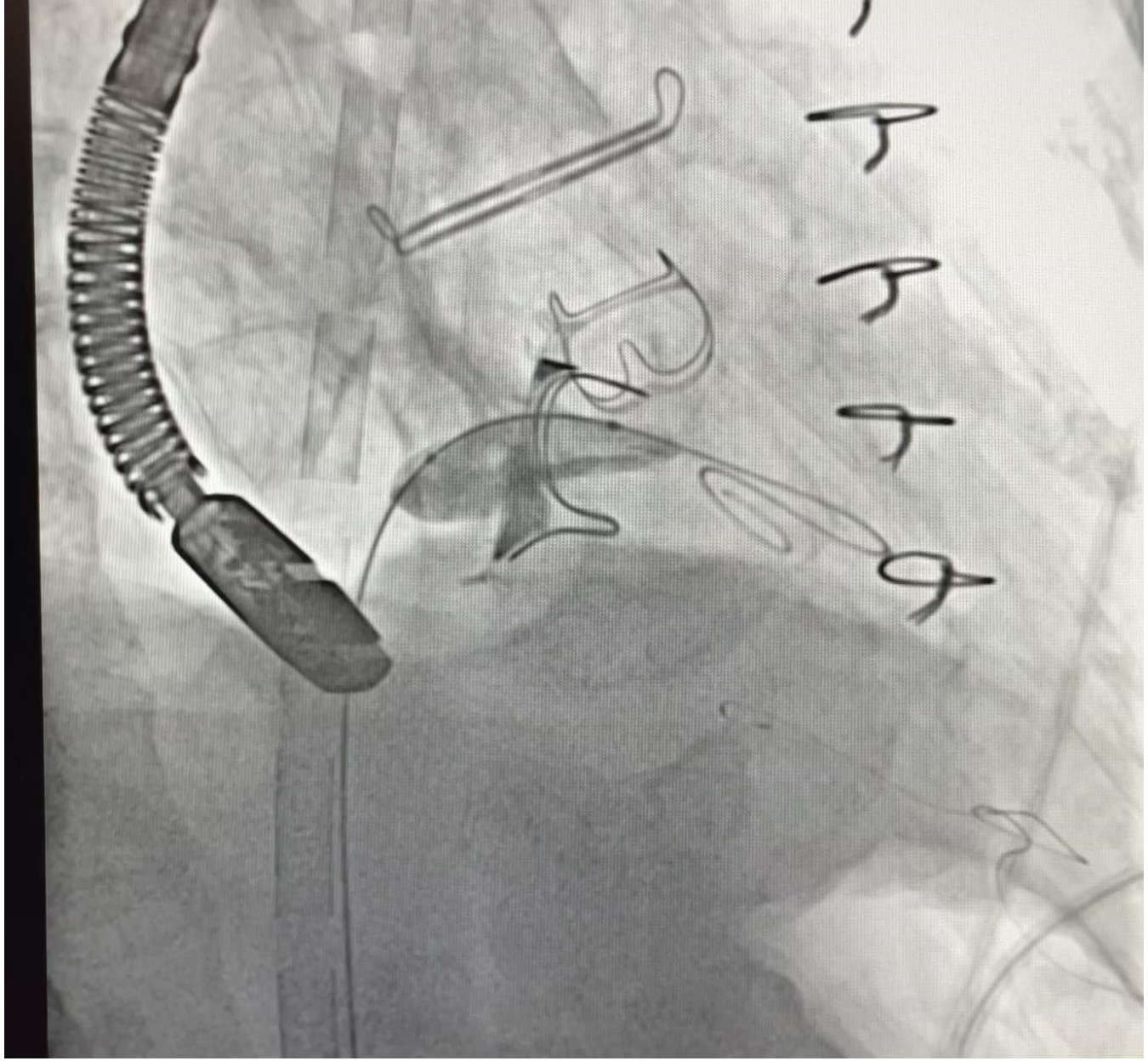
CM 1 2 3 4 5 6 7 8 9 10 11 12 13 14
MEDLINE
INCHES 1 2 3 4 5

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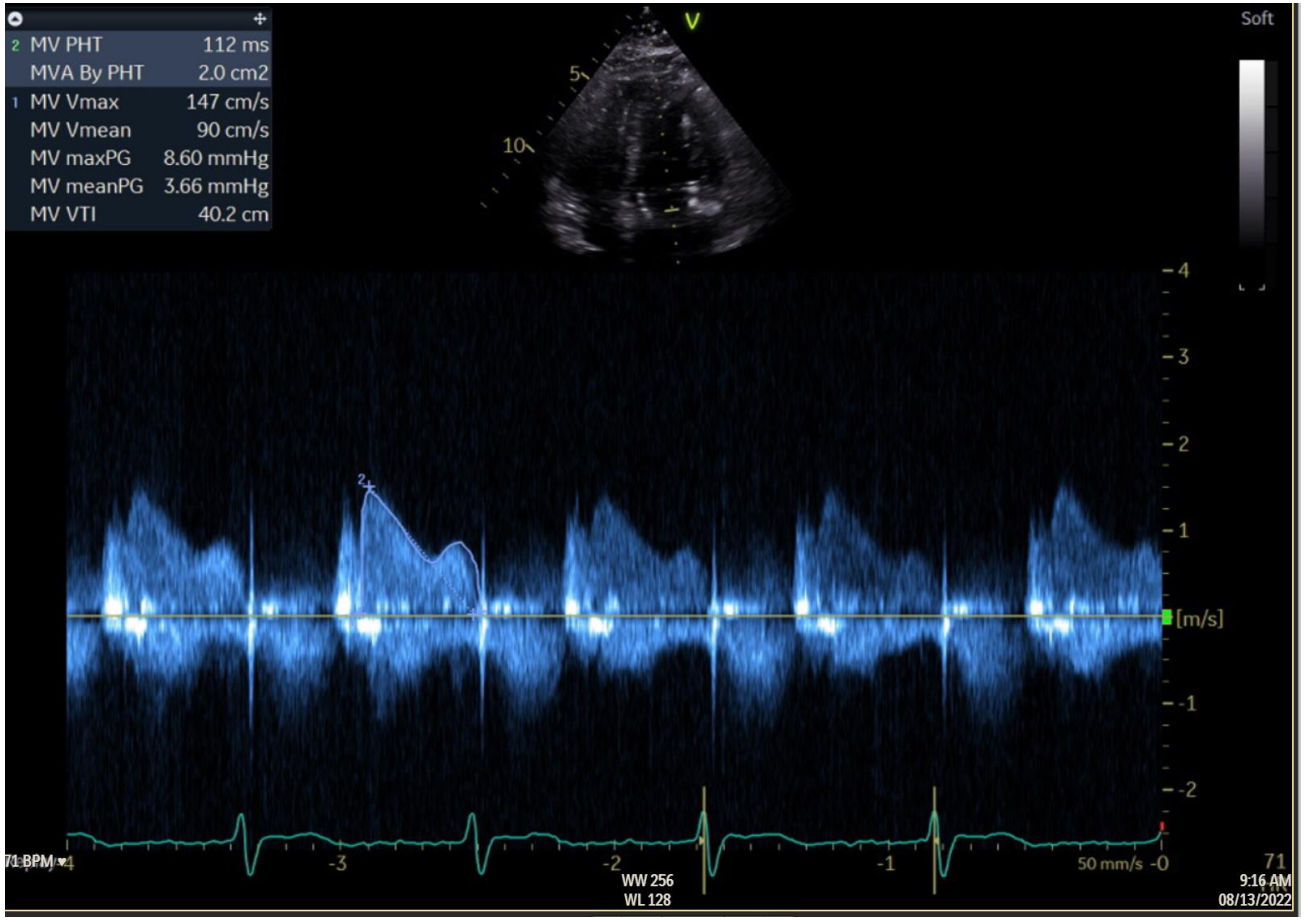
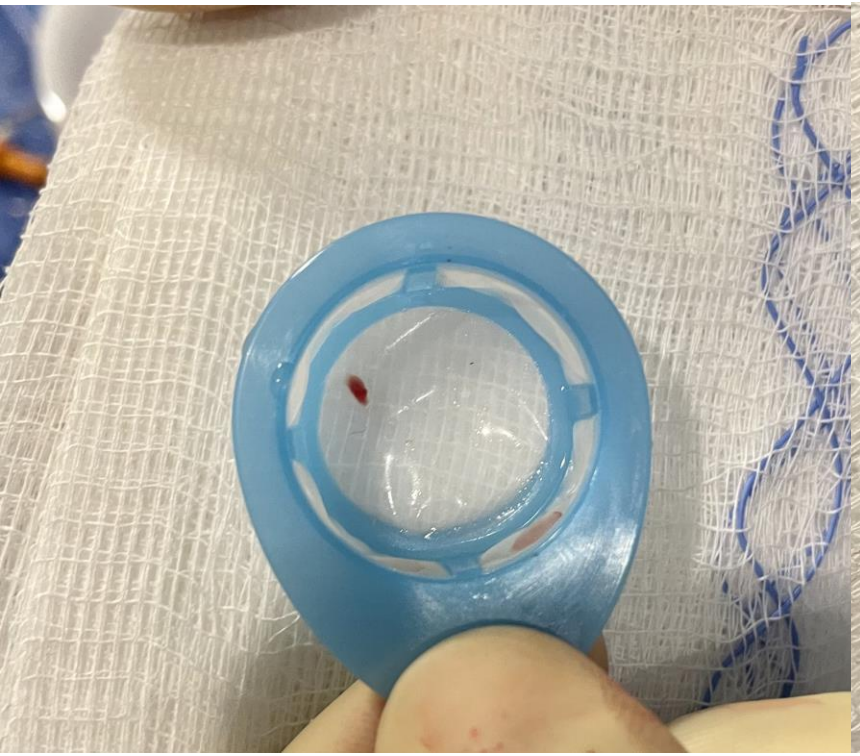
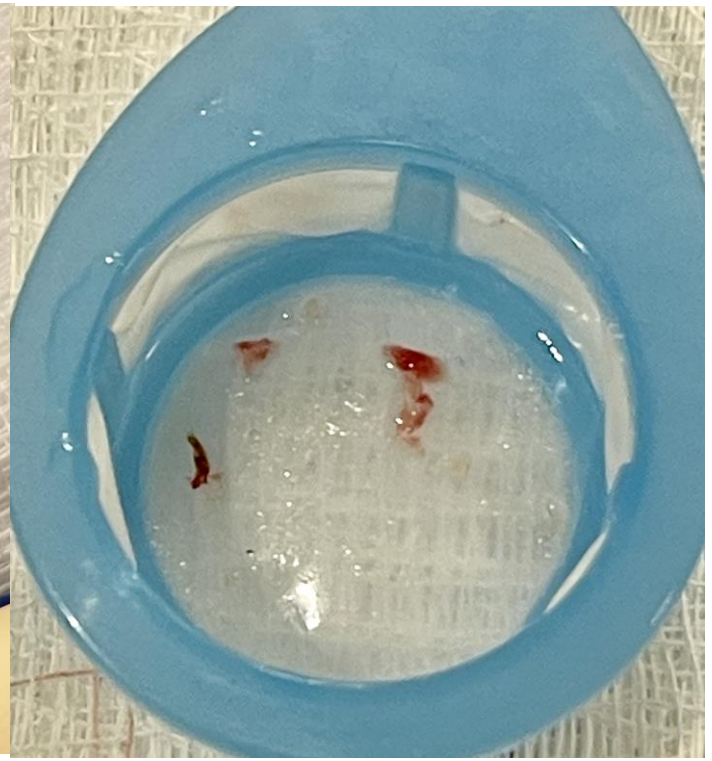
# Post-VIV


2 MV PHT 112 ms
MVA By PHT 2.0 cm2
1 MV Vmax 147 cm/s
MV Vmean 90 cm/s
MV maxPG 8.60 mmHg
MV meanPG 3.66 mmHg
MV VTI 40.2 cm
Soft
[m/s]
50 mm/s
WW 256
WL 128
71 BPM
9:16 AM
08/13/2022

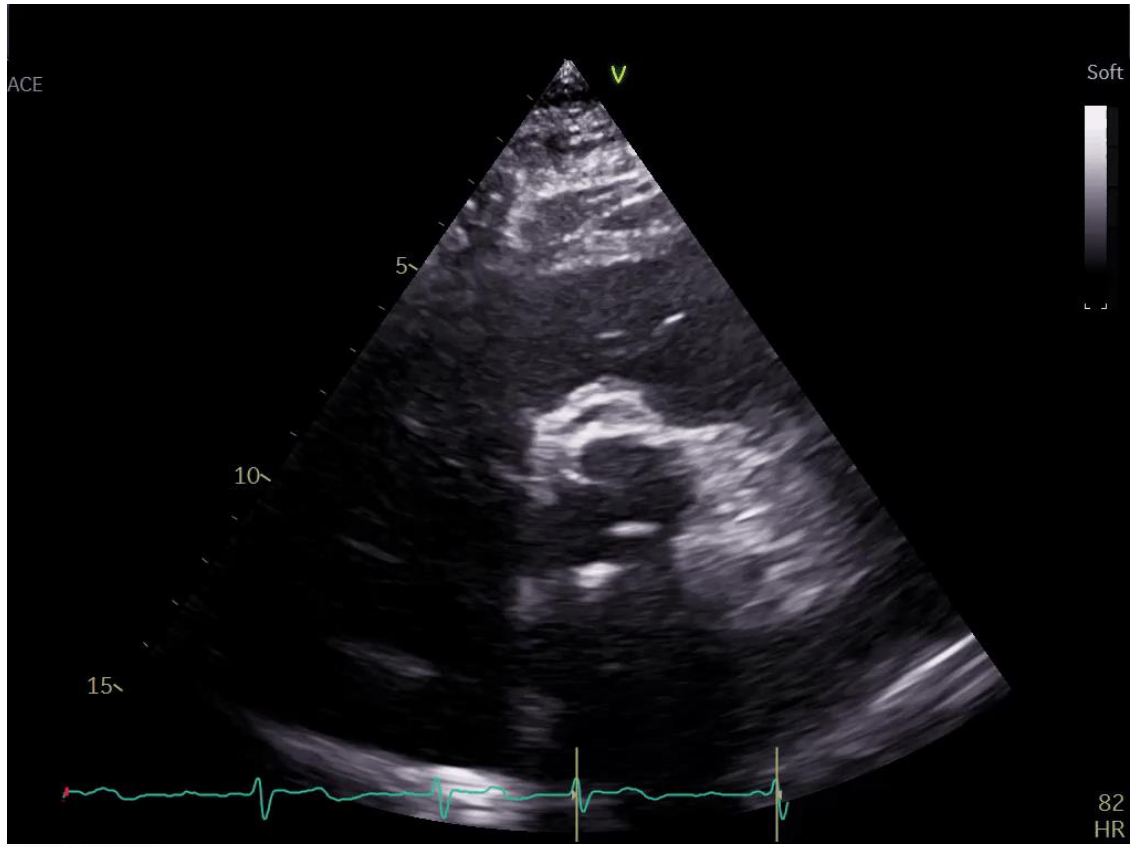


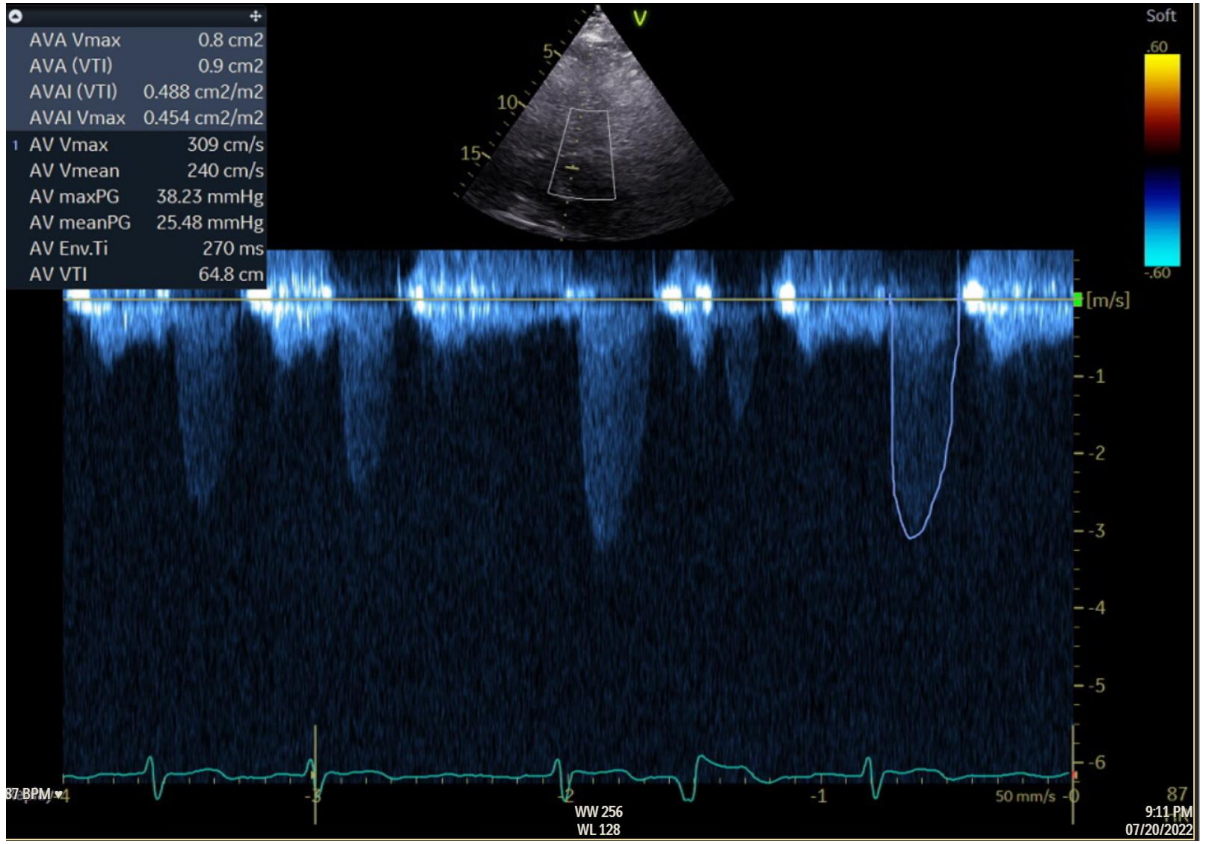


# One month later

# Procedure plan 2nd part:ViV TAVR

- Moderate Sedation (TIVA)
- Ultrasound guided RCFA, LCFV, and LCFA
- Transvenous pacemaker
- Balloon aortic valvuloplasty with a 22 mm true dilation balloon-bioprosthetic valve fracture
- Transfemoral TAVR using a 26 mm Medtronic Pro plus valve

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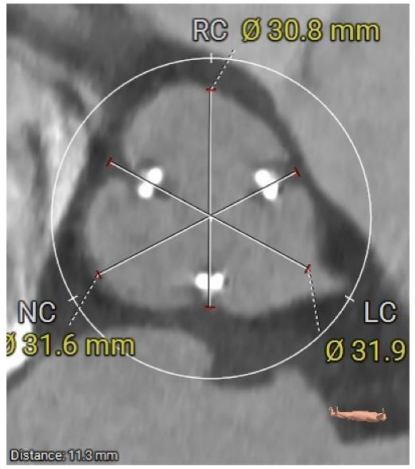
# CT

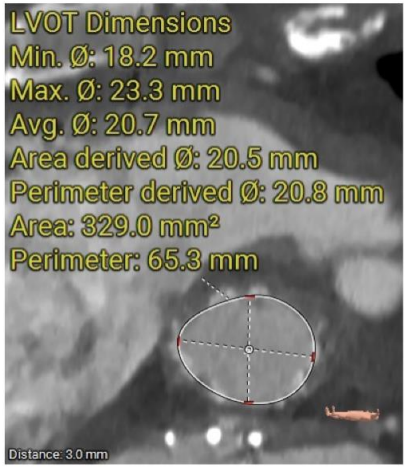
## Aorta

ANNULUS

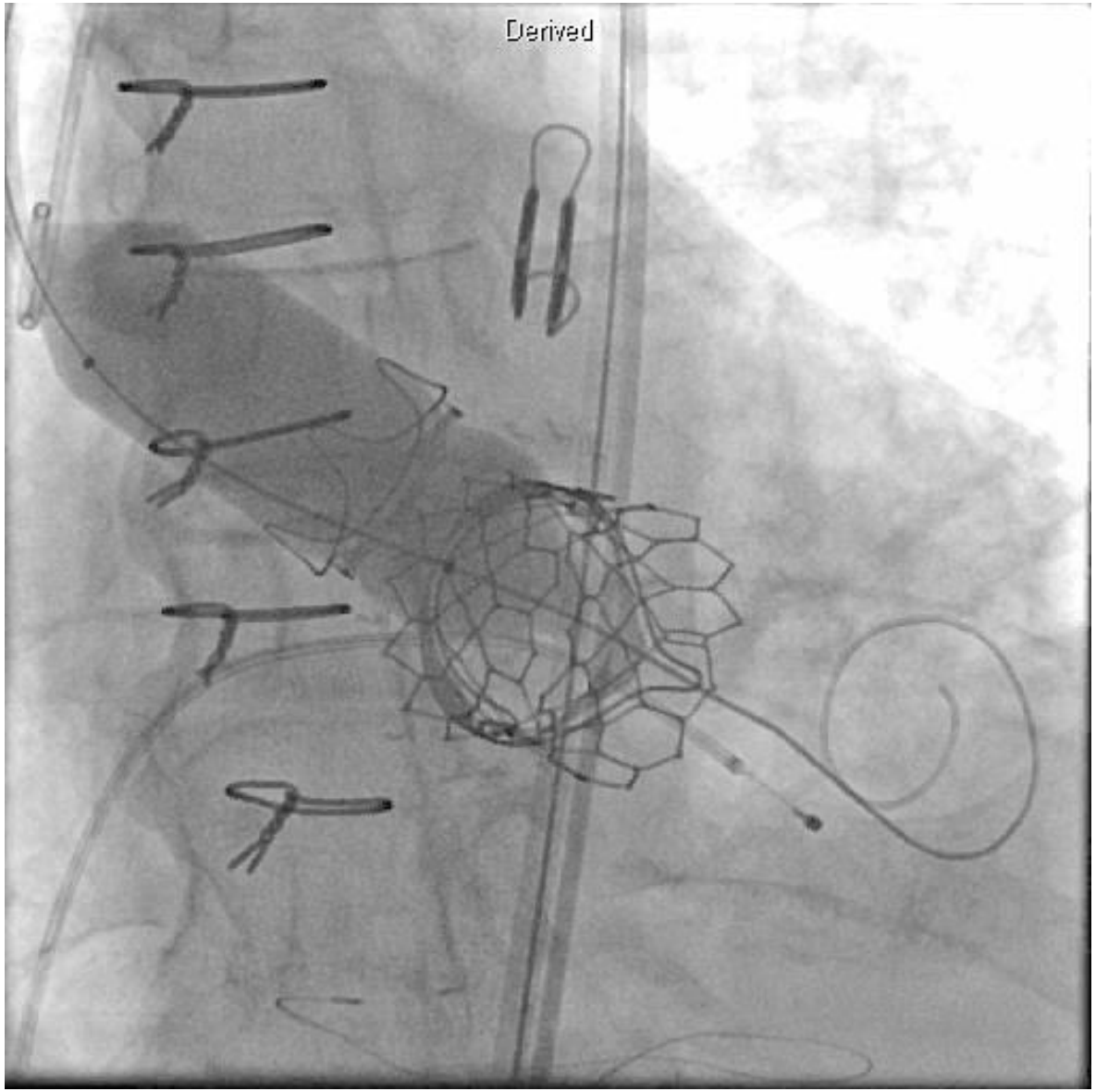

SOV DIAMETER




LVOT




STJ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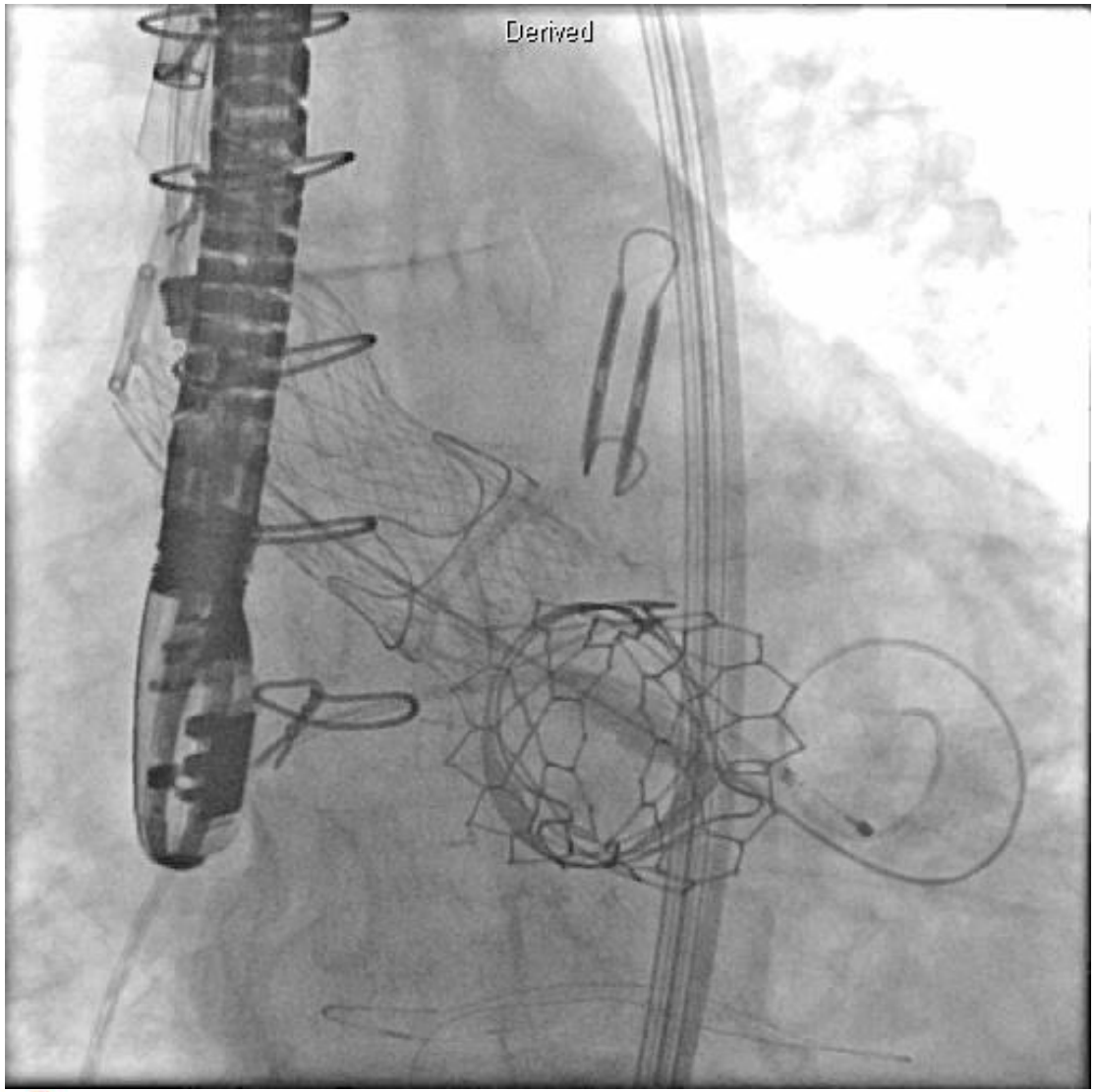
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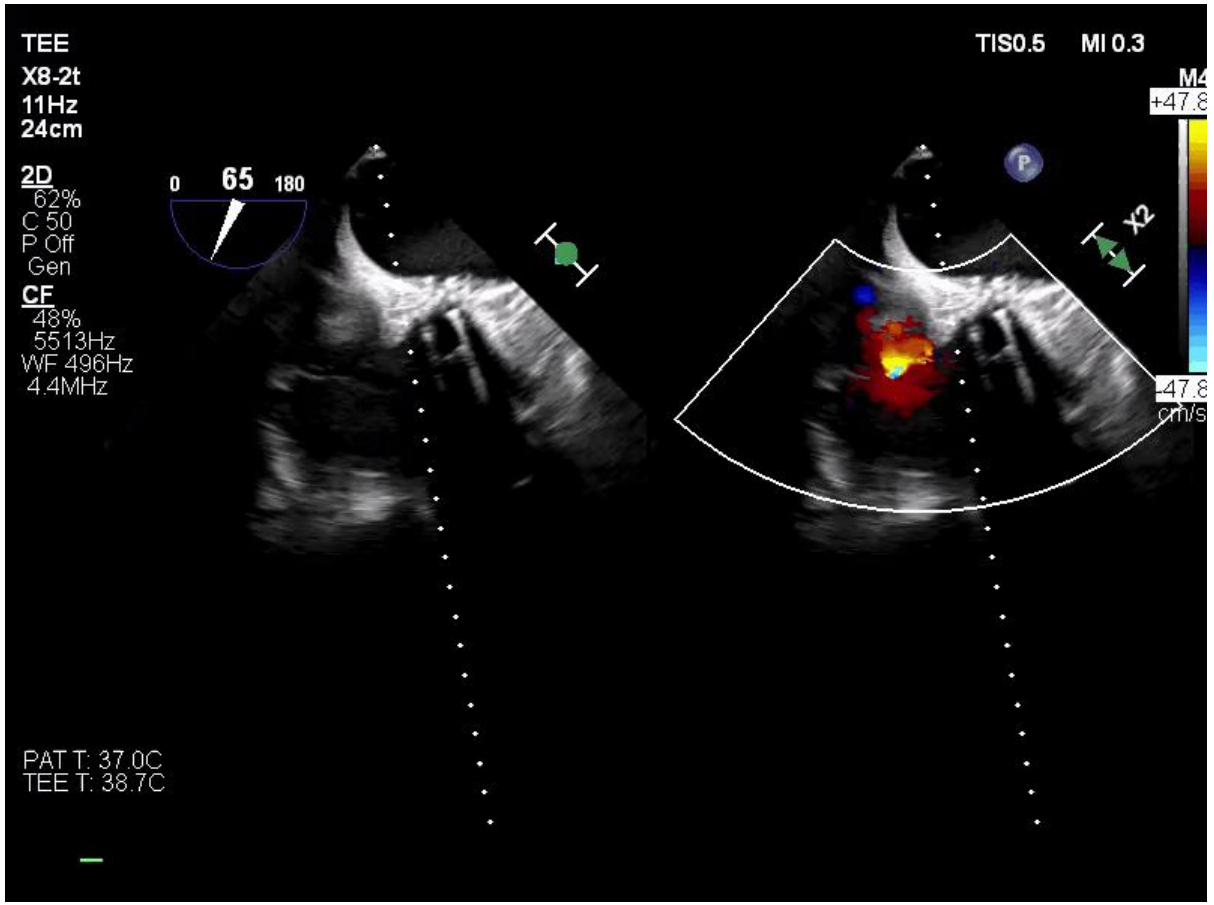
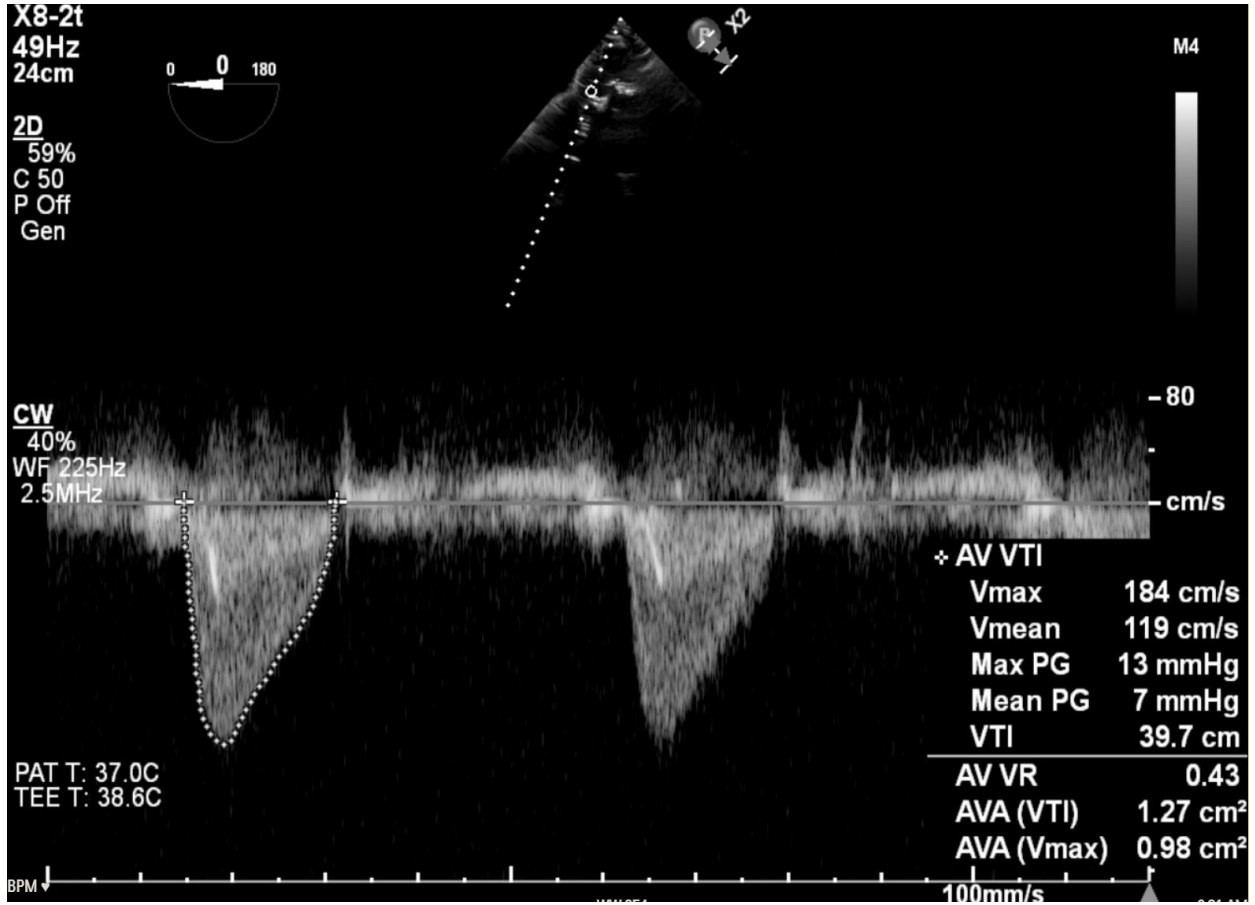

TEE
X8-2t
11Hz
24cm
2D
62%
C 50
P Off
Gen
CF
48%
5513Hz
WF 496Hz
4.4MHz
0
65
180
TIS0.5
MI 0.3
M4
+47.8
-47.8
cm/s
X2
PAT T: 37.0C
TEE T: 38.7C


X8-2t
49Hz
24cm
2D
59%
C 50
P Off
Gen
0
0
180
M4
X2
CW
40%
WF 225Hz
2.5MHz
80
cm/s
AV VTI
Vmax 184 cm/s
Vmean 119 cm/s
Max PG 13 mmHg
Mean PG 7 mmHg
VTI 39.7 cm
AV VR 0.43
AVA (VTI) 1.27 cm²
AVA (Vmax) 0.98 cm²
PAT T: 37.0C
TEE T: 38.6C
BPM
100mm/s

# Follow up

- Complete resolution of symptoms
- No readmissions of any kind
- Tolerating OAC, living normal life, echo with gradients maintained normal

# Thank you