

# Sitting in with the Heart Valve Team: Cases to Learn From

**Robert R Moss**

**St. Paul's UBC BC Canada**

**[rmoss@providencehealth.bc.ca](mailto:rmoss@providencehealth.bc.ca)**



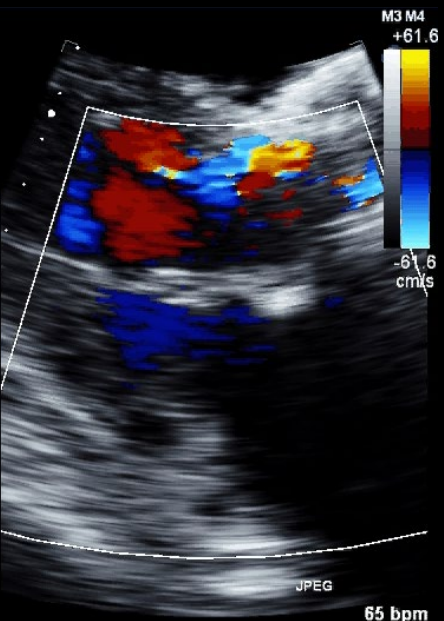
# Case

- **AVR age 20, Freestyle prosthesis**
- **Failed, replaced with Mosaic surgical bioprosthesis**
- **Failed, complex TAVI valve in valve procedure, valve migration, surgical conversion, 'open' implant 23 Sapien XT TAVR valve, with suturing in position**
- **Stormy course, ECMO, LVAD, recovery, explant with apical plug**
- **Now dyspnoea, and the TAVIR valve now has severe AR identified on TTE**



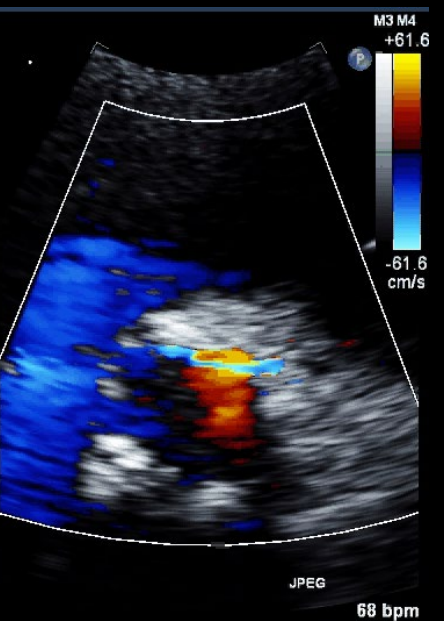
FR 15Hz  
19cm

2D  
66%  
C 50  
P Low  
HPen  
CF  
75%  
2.3MHz  
WF High  
Med

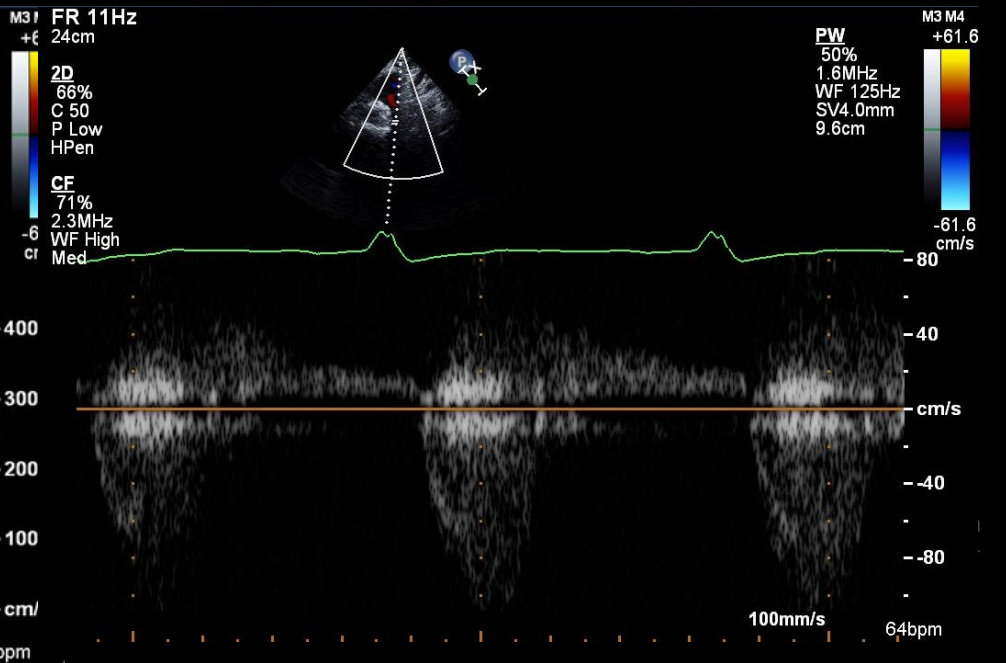
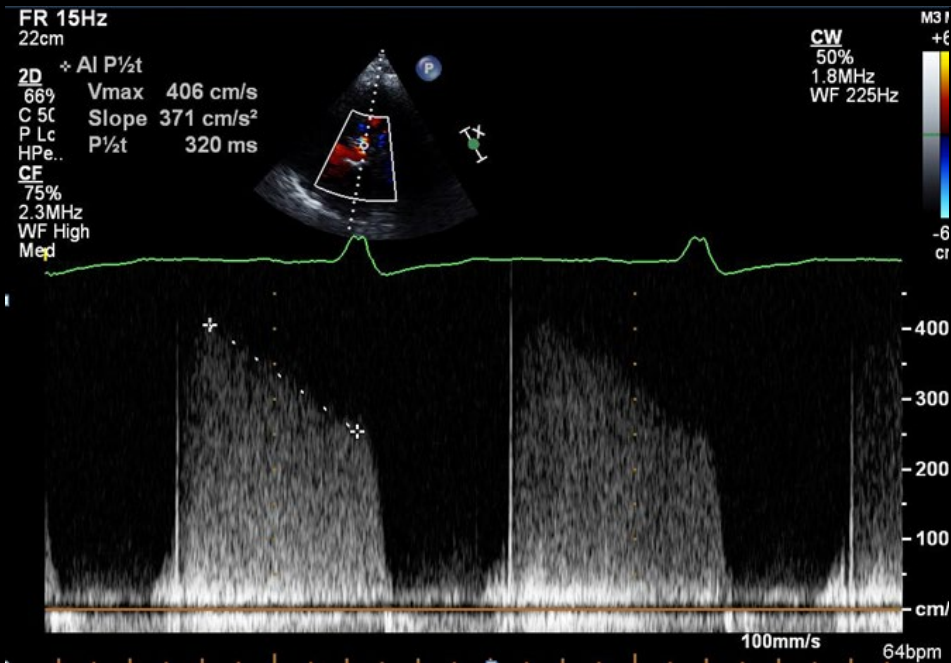
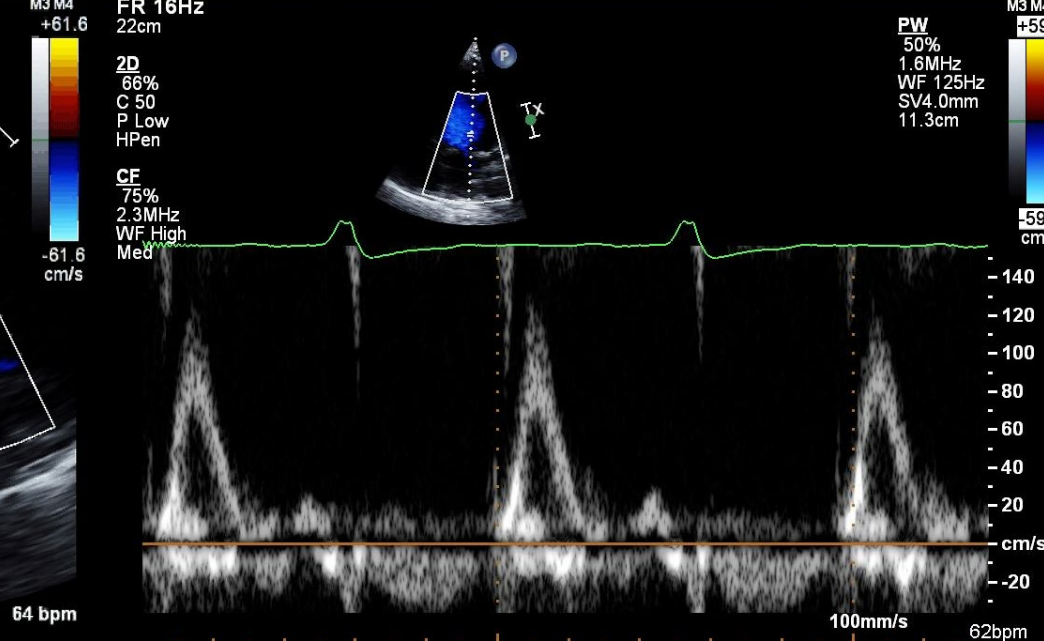
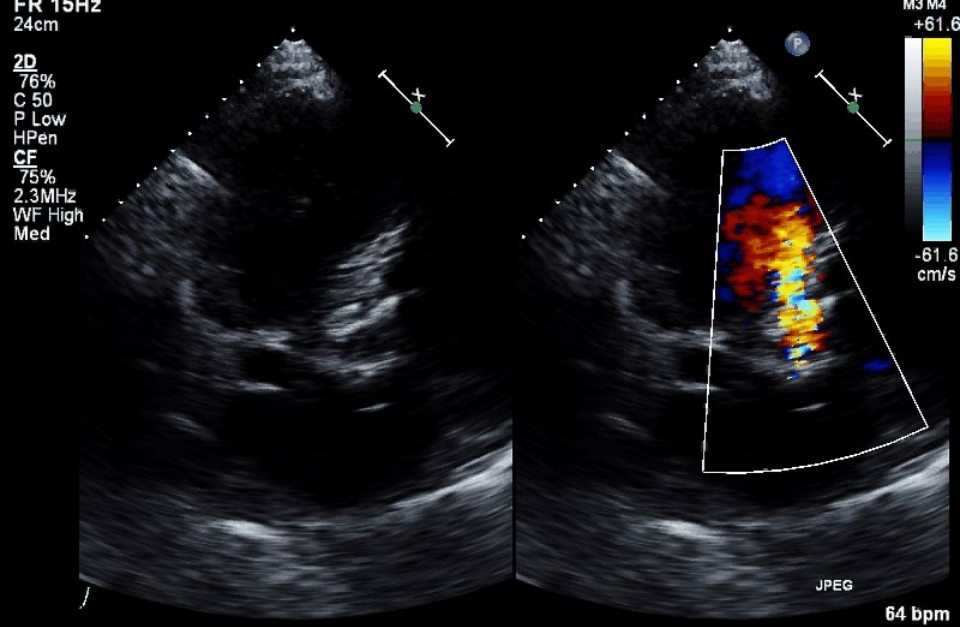


FR 13Hz  
15cm

2D  
59%  
C 50  
P Low  
HPen  
CF  
75%  
2.3MHz  
WF High  
Med



Centre for  
Heart Valve Innovation  
St. Paul's Hospital, Vancouver

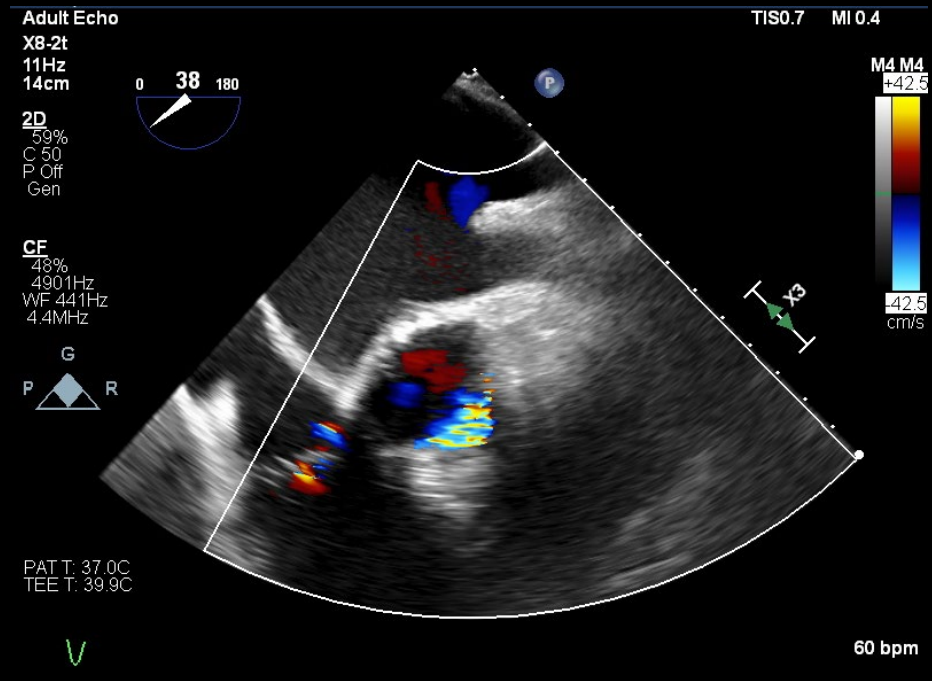
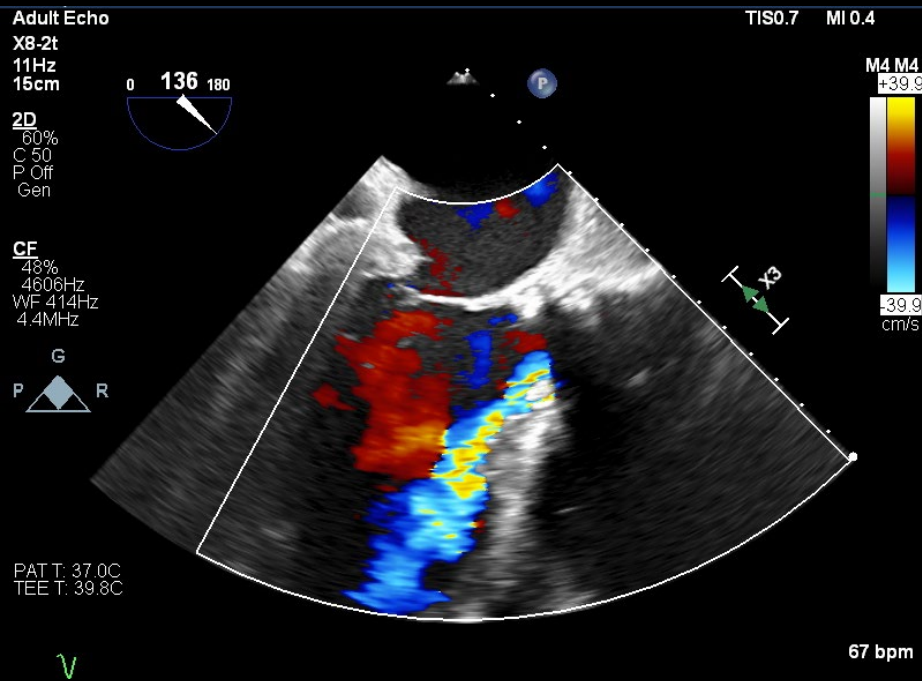


## Summary and Conclusions:

1. Technically difficult; suboptimal images.
2. Mildly decreased LV systolic function. Biplane Simpson's LVEF = 49 %.
3. Global LV hypokinesis.
4. Severely dilated LV size.
5. Severe diastolic dysfunction. Elevated LV filling pressure.
6. RV dilated by linear dimension.
7. RV systolic function is mildly decreased.
8. LA severely dilated by volume index (volume index: 62 ml/m<sup>2</sup>).
9. RA dilated by volume index.
10. Aortic bioprosthesis (mean gradient: 14 mmHg) well seated.
11. Normal PASP: 29 mmHg.
12. Moderate to severe aortic regurgitation, possibly valvular and paravalvular. TEE may be useful.

Comparison to Previous Exam 15-May-2018: Aortic regurgitation is new.





Centre for  
Heart Valve Innovation  
St. Paul's Hospital, Vancouver

## Summary and Conclusions:

1. TEE for assessment of bioprosthetic aortic valve.
2. Mildly dilated LV. Mild-moderately reduced systolic function. EF 40-45%.
3. Global hypokinesis. Abnormal ventricular septal motion with no other regional wall motion abnormalities.
4. Normal RV size. RV systolic function is mildly decreased.
5. Severe biatrial enlargement.
6. Aortic bioprosthesis did not have a rocking motion. Severe paravalvular regurgitation by color Doppler and predominantly anteriorly directed (vena contracta 7.4 mm). Proximal descending thoracic aorta diastolic flow reversal TVI 21 cm also suggested severe regurgitation. This could be related to nonoptimally visualized 3 mm detachment of the sewing ring from the aortic annulus (3-9 o'clock position on short axis view).
7. No mass, thrombus, or vegetation identified.

Comparison to Previous Exam 21-May-2019: Minimal changes from prior study.



## Next steps:

- **Poor surgical candidate**
- **If valvular AR: TAVR valve in valve**
- **If PAR, plug**
- **There were perhaps some clues along the way...**
- **No pressure, but...**
- **Live Case at TCT**
- **And not a time for indecision...**



To be, or not to be: that is the question:  
Whether 'tis nobler in the mind to suffer  
The slings and arrows of outrageous fortune,  
Or to take arms against a sea of troubles,  
And by opposing end them?







Rev. Dig. Cardiol. 2014;6(7):600-14



TEE EXT

X8-2t  
17Hz  
12cm

2D  
53%  
C 50  
P Off  
HGen  
CF  
40%  
5619Hz  
WF 505Hz  
4.4MHz



TIS0.6 MI 0.5

M4  
+48.7  
X8-2t  
20Hz  
13cm

2D  
54%  
C 50  
P Off  
HGen  
CF  
40%  
6220Hz  
WF 559Hz  
4.4MHz

CW  
60%  
WF 225Hz  
2.5MHz

PAT T: 37.0C  
TEE T: 40.3C

54 bpm

TEE EXT



TIS0.3 MI 0.0

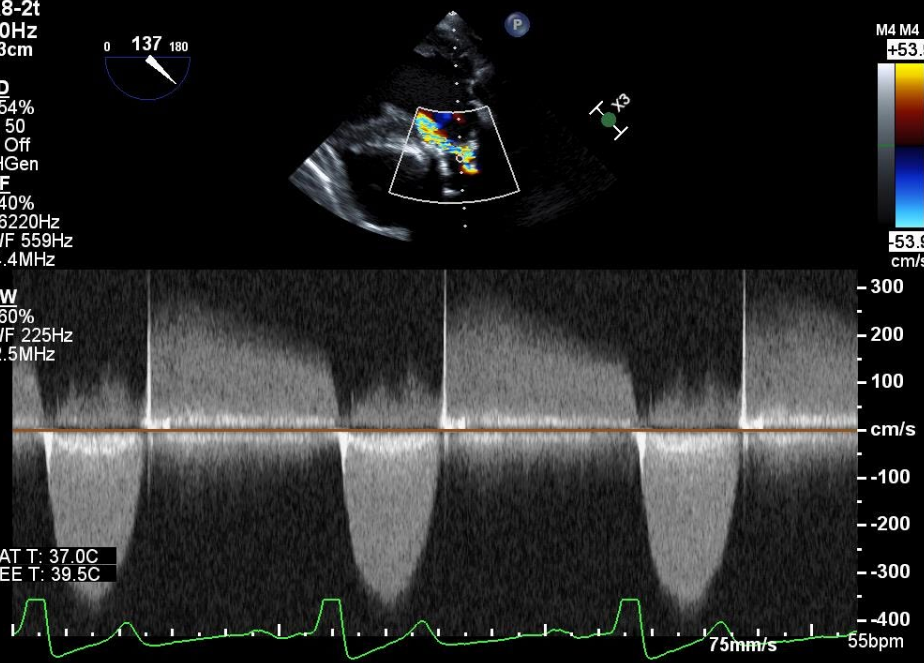
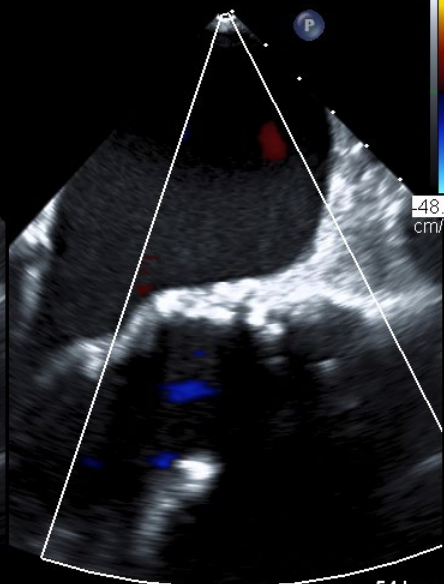
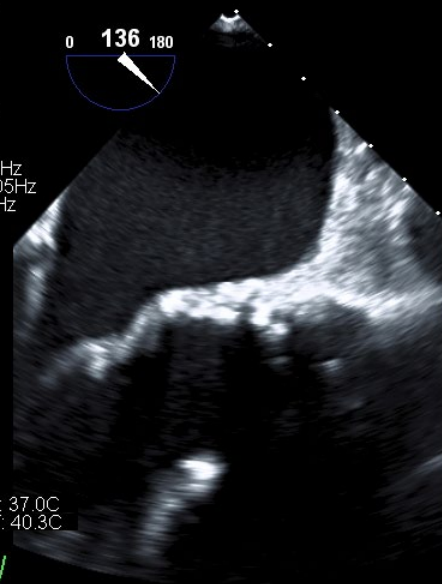
M4  
+53.9

2D  
54%  
C 50  
P Off  
HGen  
CF  
40%  
6220Hz  
WF 559Hz  
4.4MHz

CW  
60%  
WF 225Hz  
2.5MHz

PAT T: 37.0C  
TEE T: 39.5C

55 bpm



Centre for  
Heart Valve Innovation  
St. Paul's Hospital, Vancouver

TEE EXT

X8-2t  
20Hz  
13cm

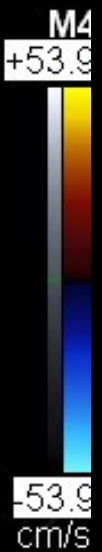
2D

54%  
C 50  
P Off  
HGen

CF

40%  
6220Hz  
WF 559Hz  
4.4MHz

TISO.6 MI 0.4



0 135 180



P

PAT T: 37.0C  
TEE T: 40.1C

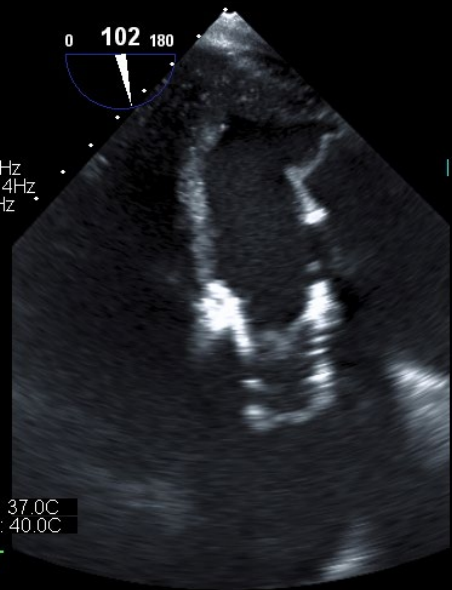
55 bpm

ion  
ver

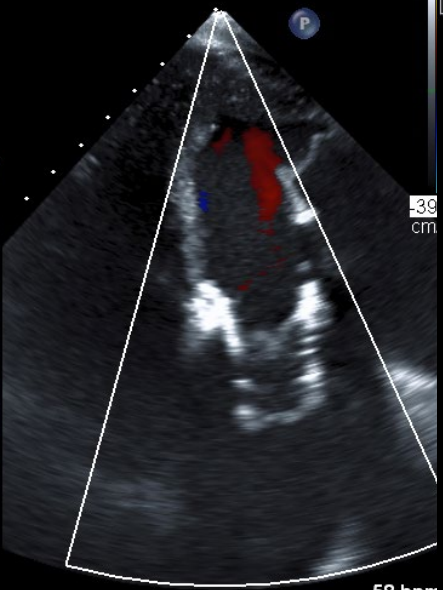
TEE EXT  
X8-2t  
16Hz  
15cm

2D  
62%  
C 50  
P Off  
HGen  
CF  
40%  
4606Hz  
WF 414Hz  
4.4MHz

PAT T: 37.0C  
TEE T: 40.0C



TIS0.6 MI 0.5



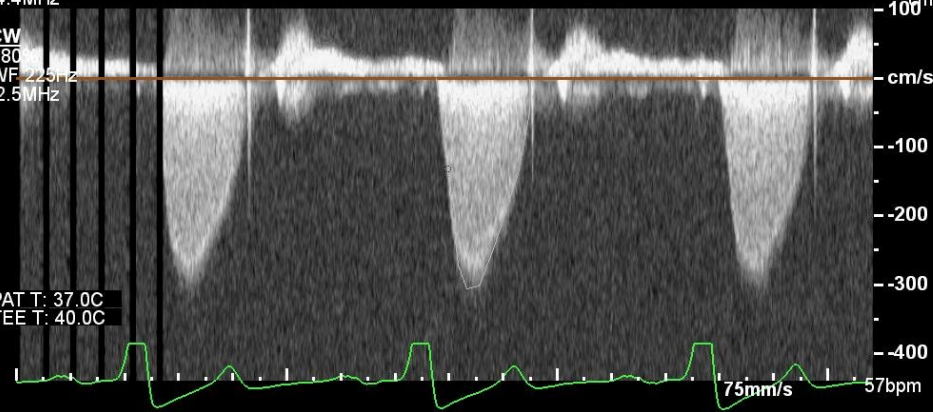
58 bpr

VTI = 0.698 m  
MnPG = 19.34 mmHg  
TAV = -2.024 m/s  
VMax = -3.062 m/s  
PG = 37.5 mmHg

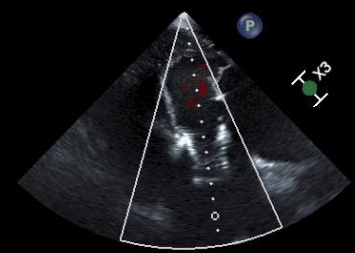
2D  
62%  
C 50  
P Off  
HGen  
CF  
40%  
4606Hz  
WF 414Hz  
4.4MHz

CW  
80  
WF 2.25Hz  
2.5MHz

PAT T: 37.0C  
TEE T: 40.0C



TIS0.3 MI 0.0



M4 M4  
+39.5



Centre for  
Heart Valve Innovation  
St. Paul's Hospital, Vancouver

# Take-homes:

**Structural heart disease is a collaborative adventure**

**Structural valve failure was considered more likely than de novo PVL in this setting**

**Don't forget the trans-gastric window for evaluating AR in the setting of a TAVR valve with regurgitation.**

