

**CHALLENGES IN MANAGING
MECHANICAL PROSTHETIC VALVE
COMPLICATIONS IN INDIAN CONTEXT**

BRIEF HISTORY

- 67 year old Female came with complaints of DOE NYHA III-IV with orthopnoea and PND.
- Known case of RVHD severe MS with moderate MR for which she underwent MVR with St. JUDE bileaflet mechanical Prosthesis 3 years back.
- She was started on Tab. warfarin 4 mg OD which she had stopped 1 month back.
- At the time of presentation
 - Patient was conscious oriented tachypneic.
 - BP- 110/80 mm Hg
 - PR- 114 / min
 - Spo2 was 86 % at room air and 96 % at 6 liters of O2

SYSTEMIC EXAMINATION

- CVS – ,S2- normal , Prosthetic Metallic click muffled
- RS – B/L crepts present upto upper zone.
- PA – soft
- CNS – NFND
- ECG – Suggestive of sinus tachycardia .

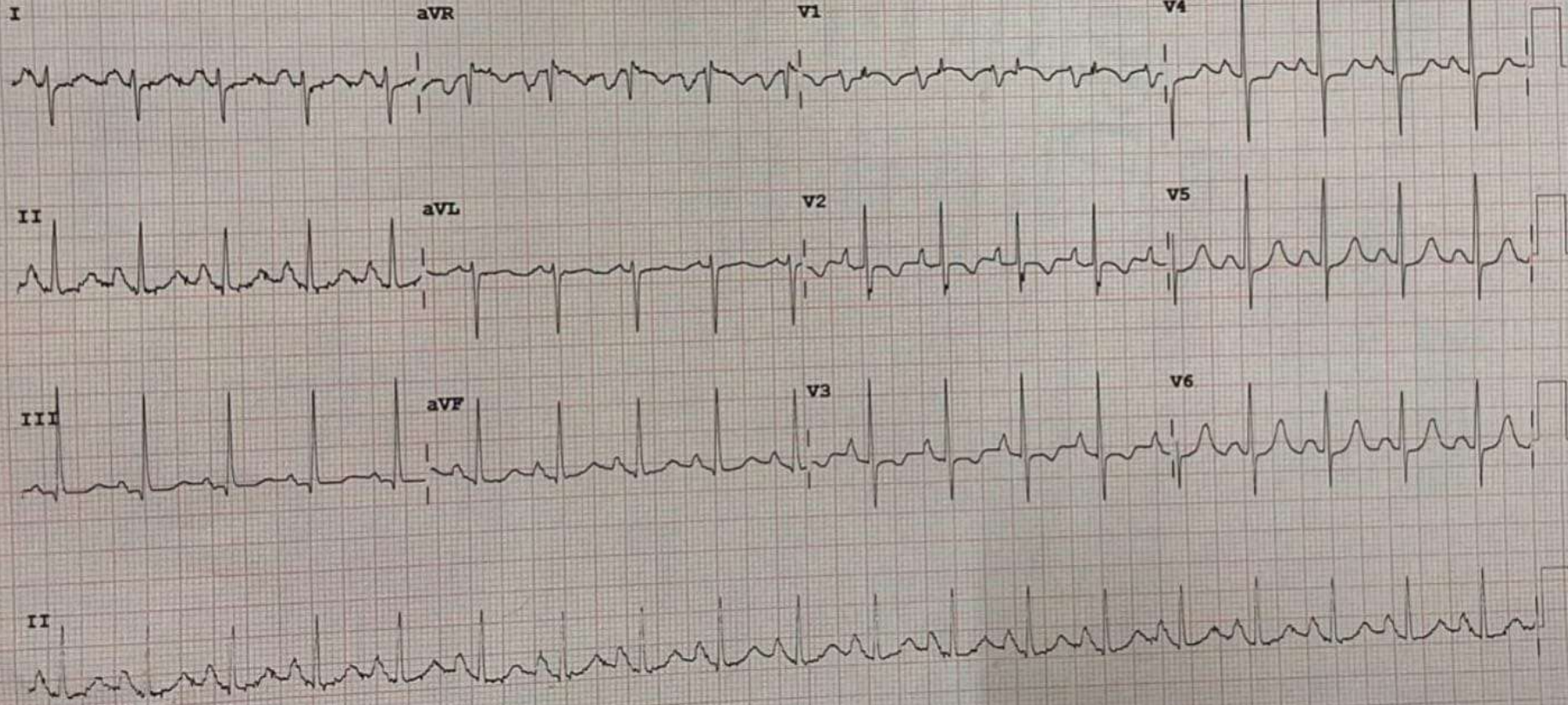
LAB. REPORTS

HEMOGLOBIN (GM%)	12.30 GM%
TLC	8500/uL
PLATELETS	220000/uL
PT INR	1.35
LFT & RFT, Electrolytes	WNL

ECG

12 Lead; Standard Placement

Unconfirmed Diagnosis



Device:

Speed: 25 mm/sec

Limb: 10 mm/mV

Chest: 10.0 mm/mV

F 60~ 0.15-100 Hz

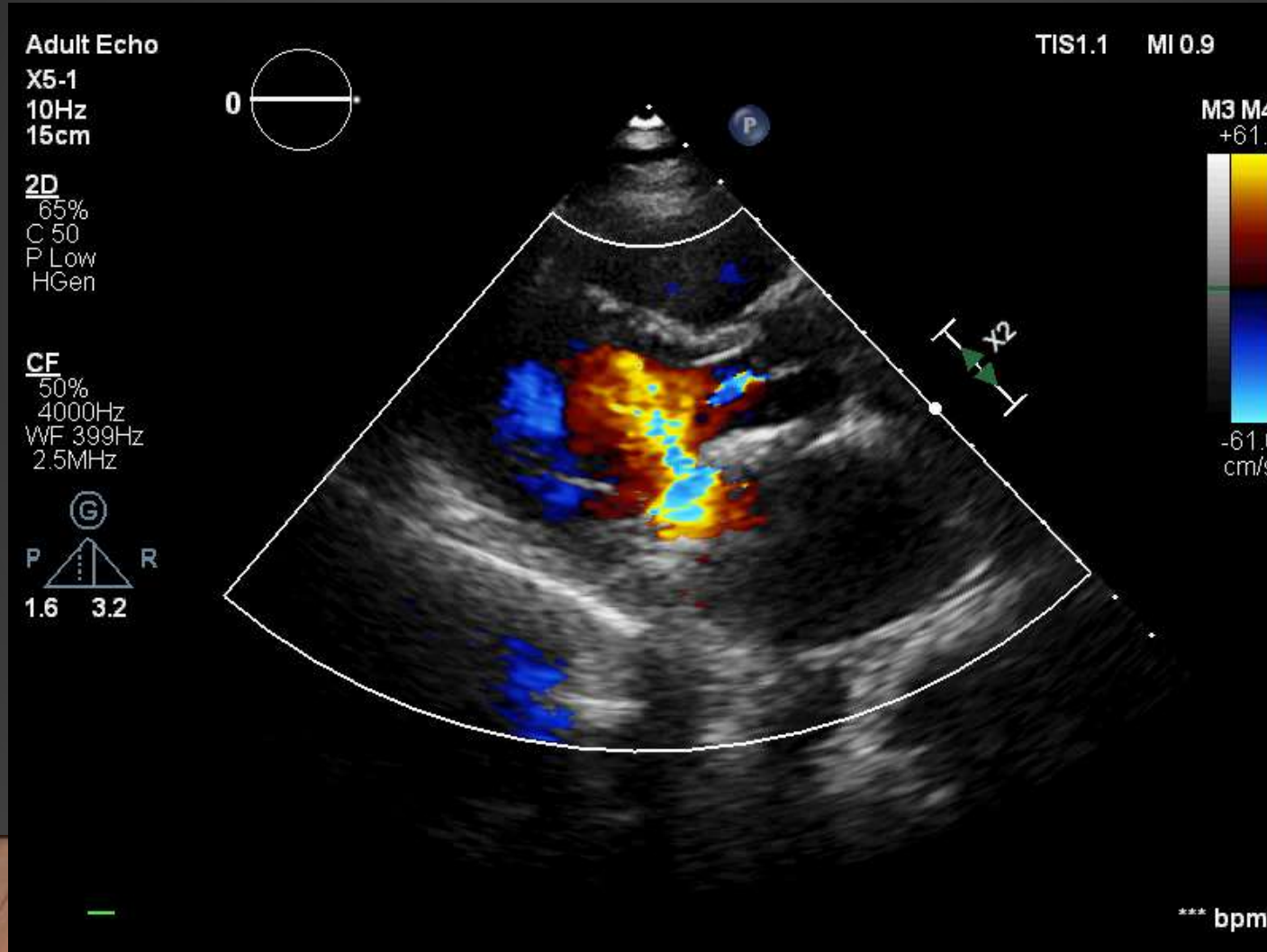
PH100B CL

P?

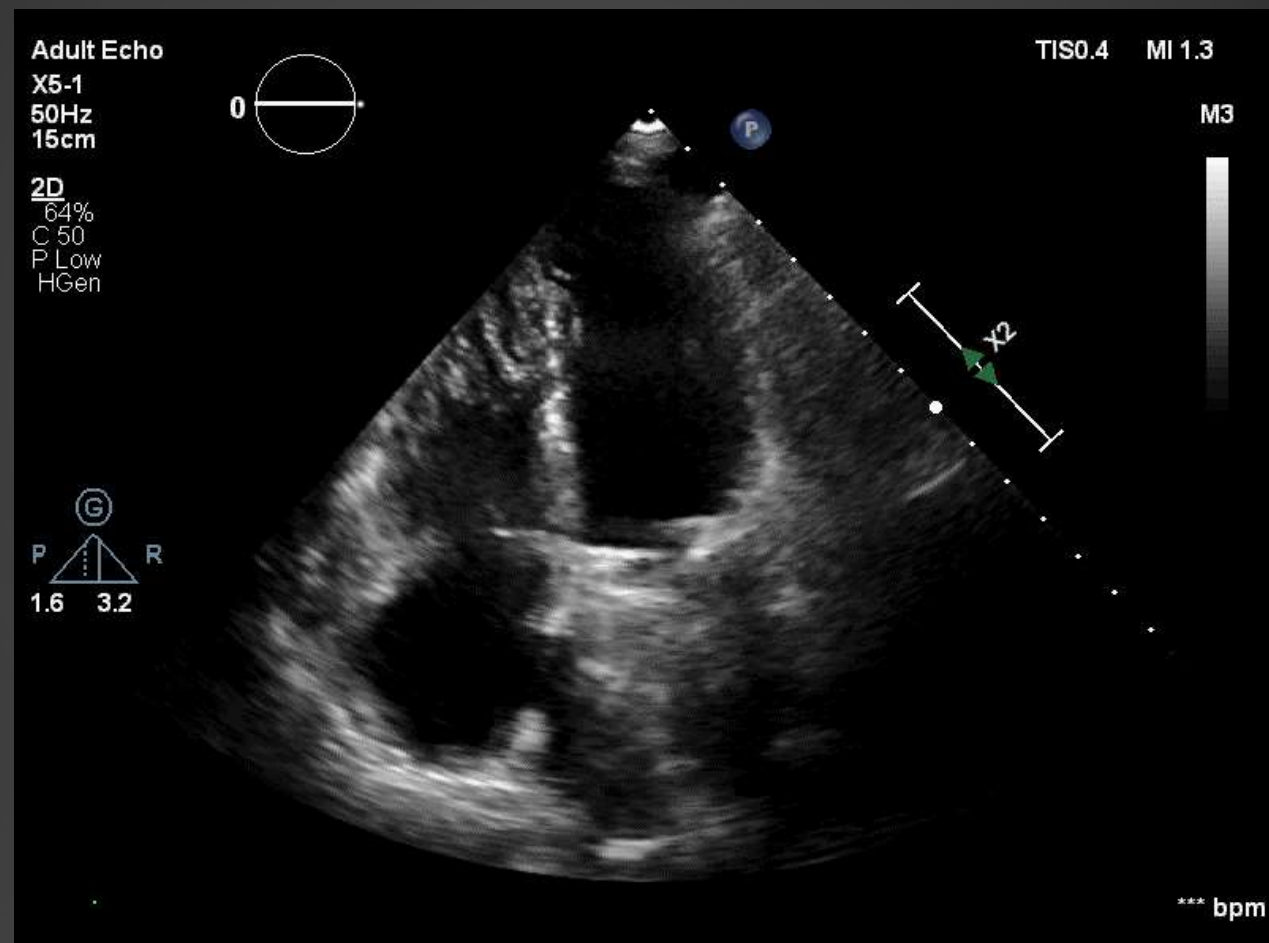
PHILIPS

REORDER M2242B

ECHO



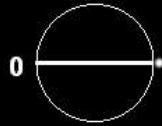
ECHO



ECHO

Adult Echo

X5-1
22Hz
15cm



2D

67%
C 50
P Low
HGen

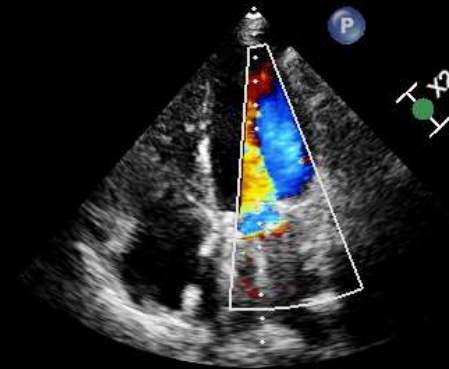
CF

50%
4000Hz
WF 399Hz
2.5MHz

CW

50%
WF 225Hz
1.8MHz

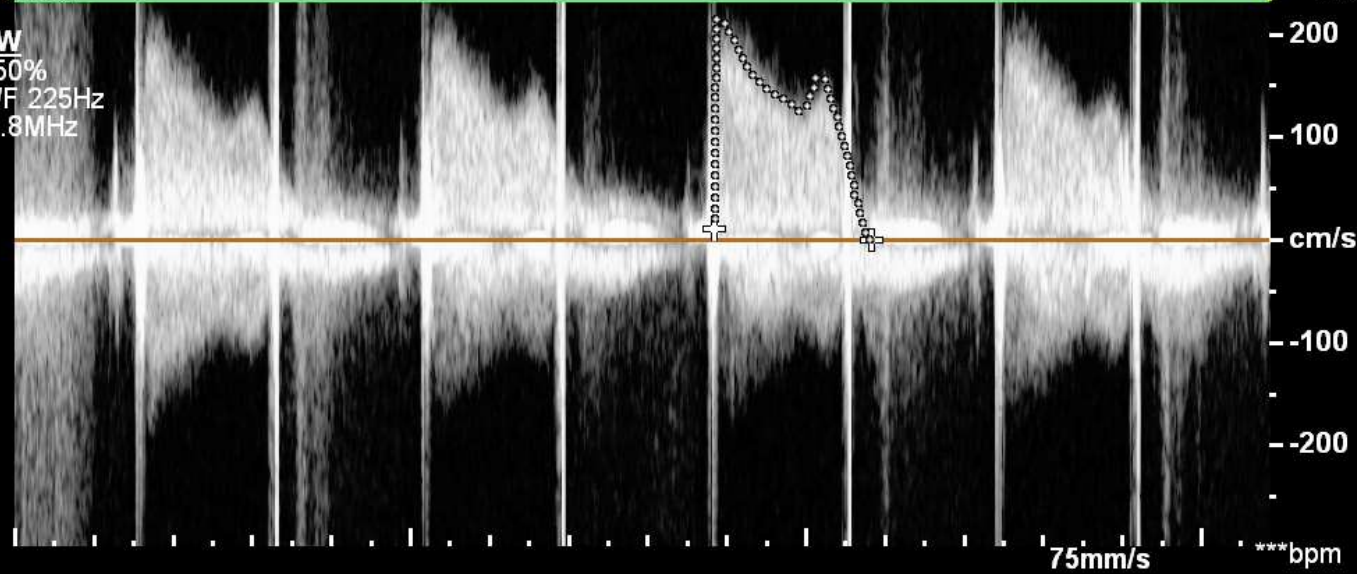
TISO.6 MI 0.1



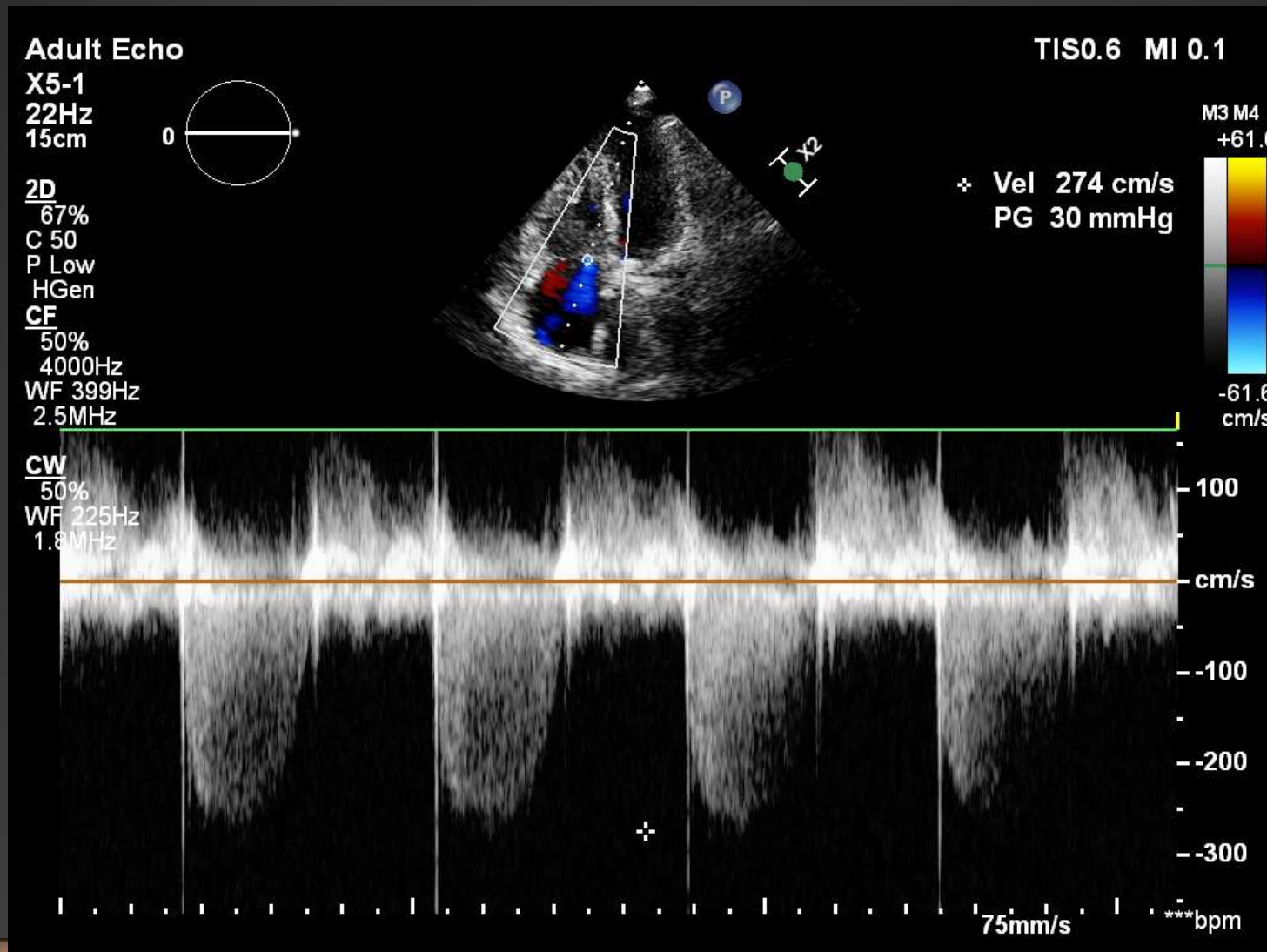
✦ MV VTI

Vmax 212 cm/s
Vmean 131 cm/s
Max PG 18 mmHg
Mean PG 8 mmHg
VTI 52.3 cm

M3 M4
+61.6



ECHO



FLUOROSCOPY

Video 1

MANAGEMENT

- Diagnosis – Prosthetic valve thrombosis (Stuck valve)
- Treatment - Thrombolysis with streptokinase 2.5 lakh units bolus followed by 1 lakh units per hour infusion for 24 hours.
- After thrombolysis and repeat fluoroscopy patient was started on Inj.LMWH with overlap of warfarin for 5 days and was advised to follow-up with a target INR of 2.5 to 3.0.

POST THROMBOLYSIS RESULT

Video 1

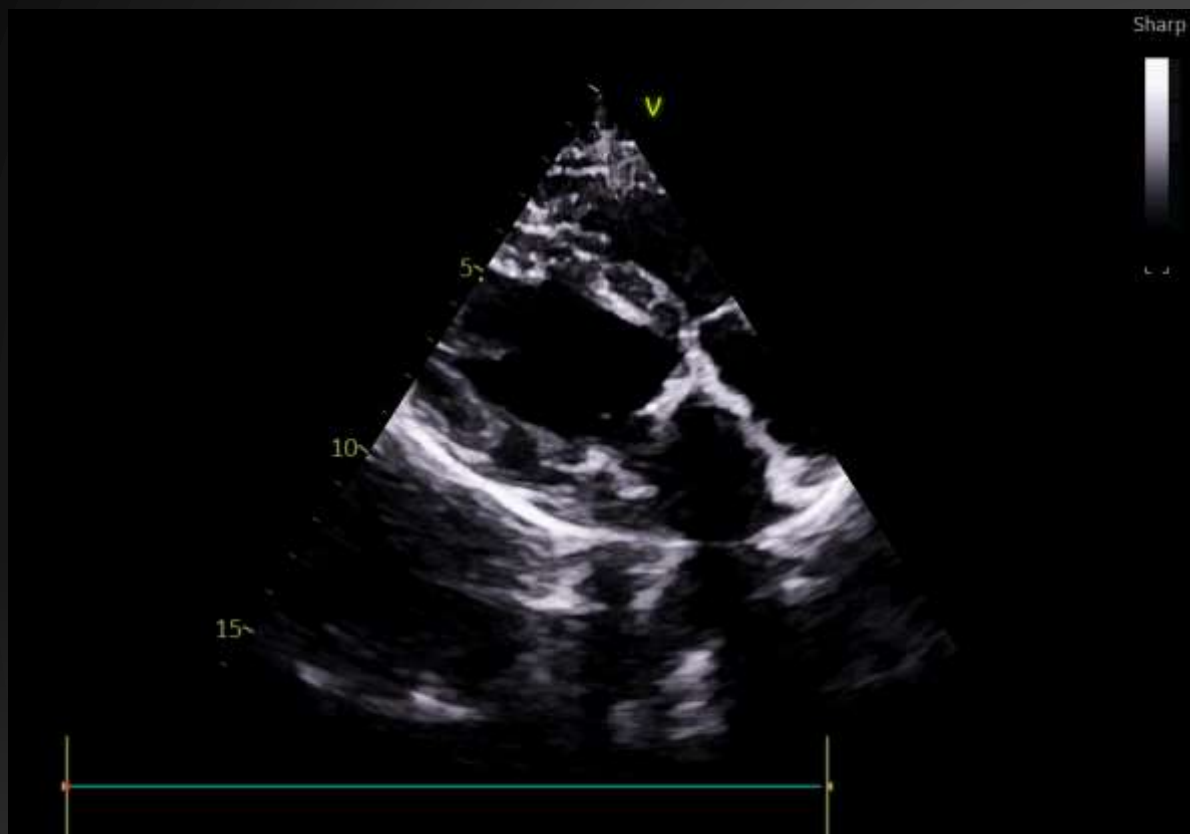
ECHO FEATURES OF BILEAFLET VALVE

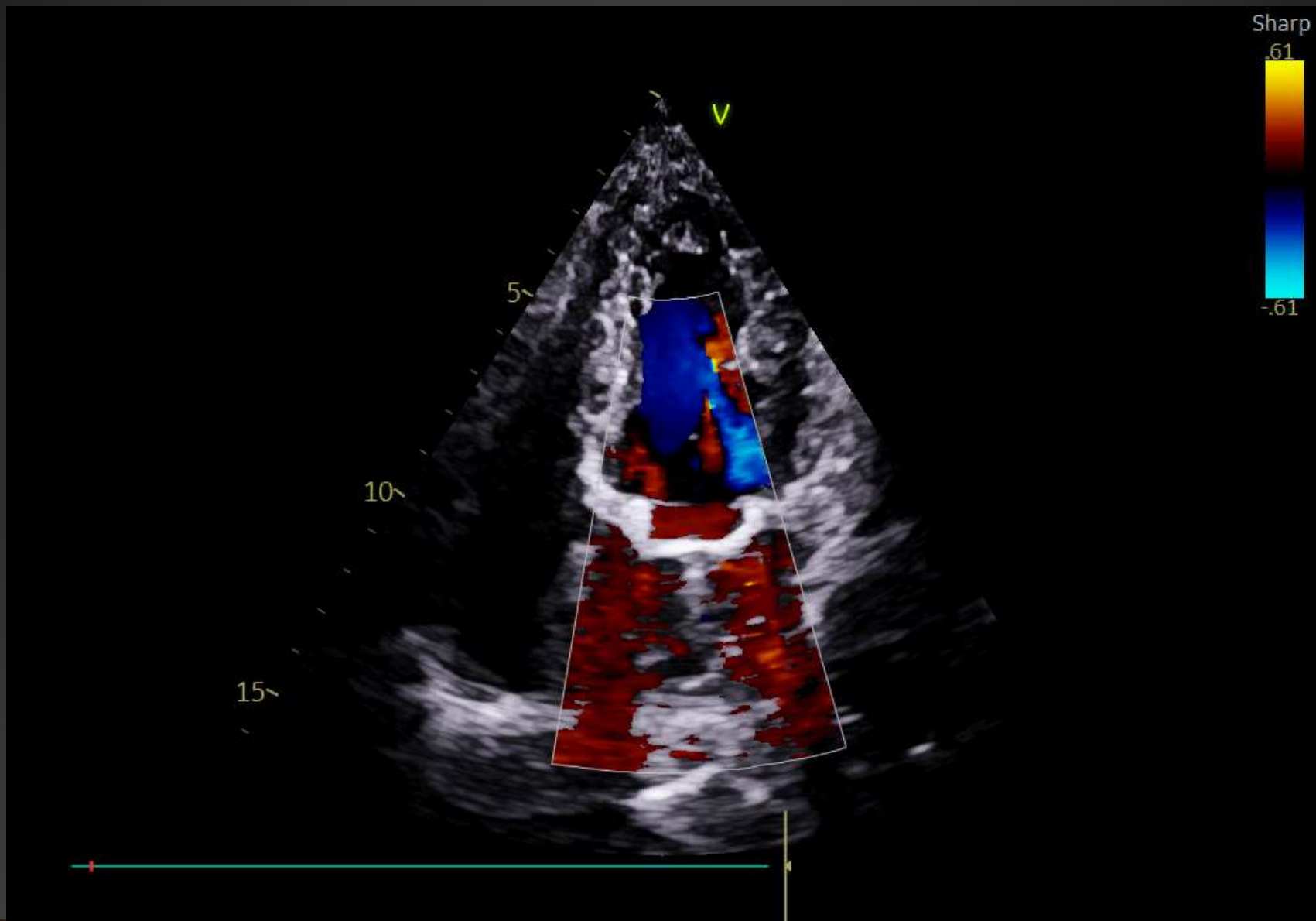
- Both leaflets are typically visualized .
- Opening angle 75° to 90°
- Closing position 120° for valves ≤ 25 mm & 130° for valves ≥ 27 mm
- Three orifices are seen in diastole with highest velocity from central orifice
- Bileaflet have the largest EOA of all the mechanical valves ($2.4\text{--}3.2\text{ cm}^2$) with little intrinsic mitral regurgitation (MR).

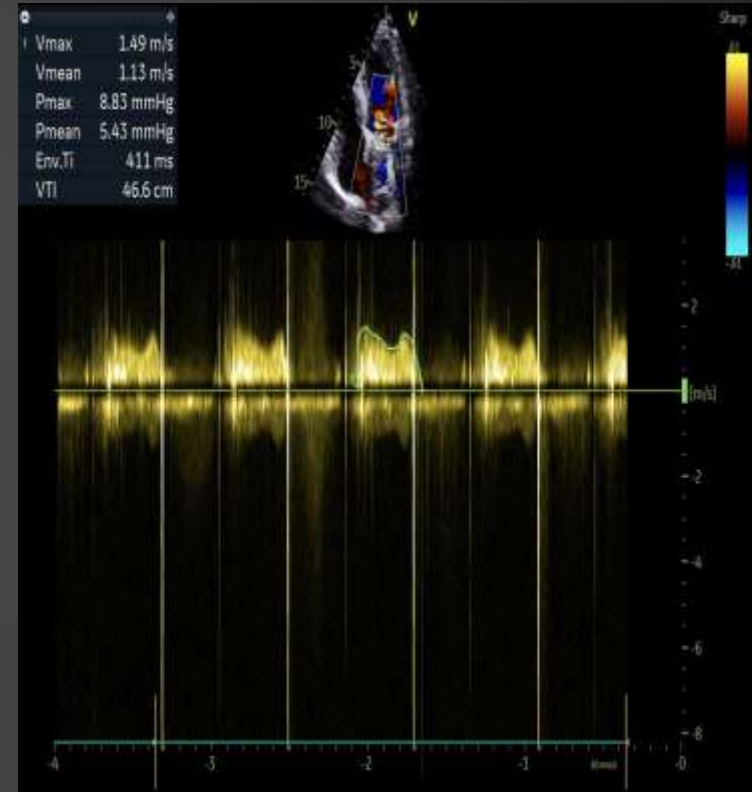
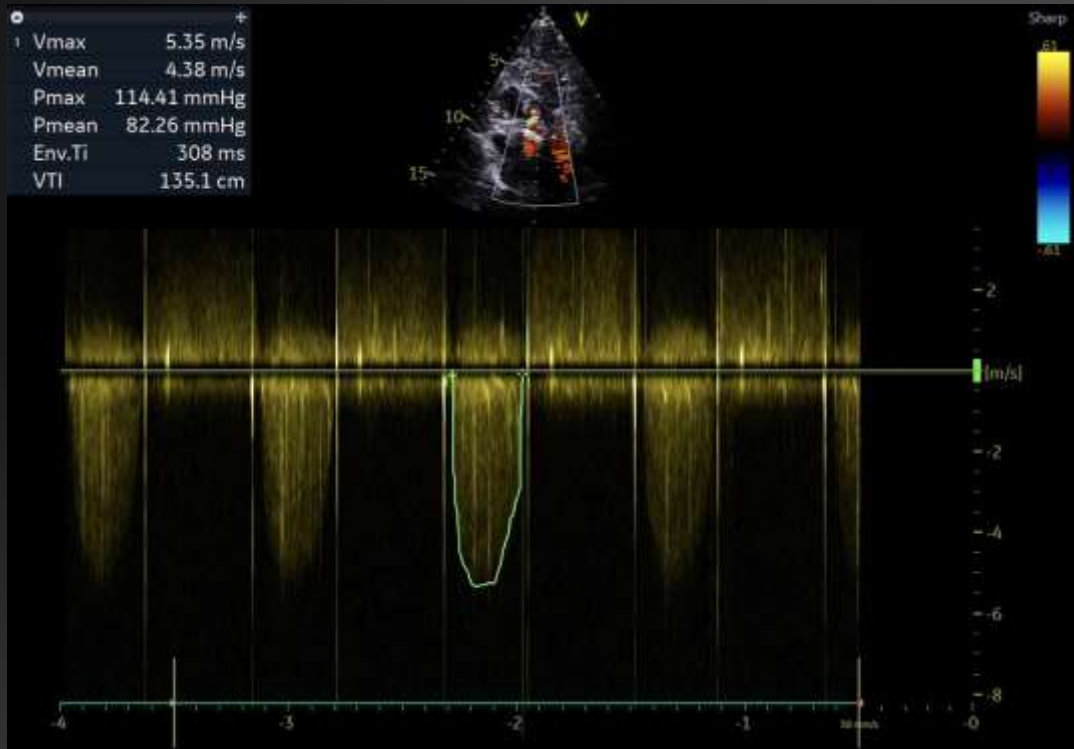
CASE 2

- **42 YEARS/F**
- **H/O DVR (Metallic Prosthetic -SJM)-2020**
- **ON TAB WARFARIN 5 MG OD**
- **C/O DOE NYHA CL II SINCE LAST 10 DAYS PROGRESSING TO NYHA CL III SINCE LAST 2 DAYS**
- **NO ASSOCIATED CHEST PAIN,SYNCOPE,PRE-SYNCOPE**

HEMOGLOBIN (GM%)	11.70 GM%
TLC	7500/uL
PLATLATES	164000/uL
PT INR	1.7
LFT &RFT,Electrolytes	WNL





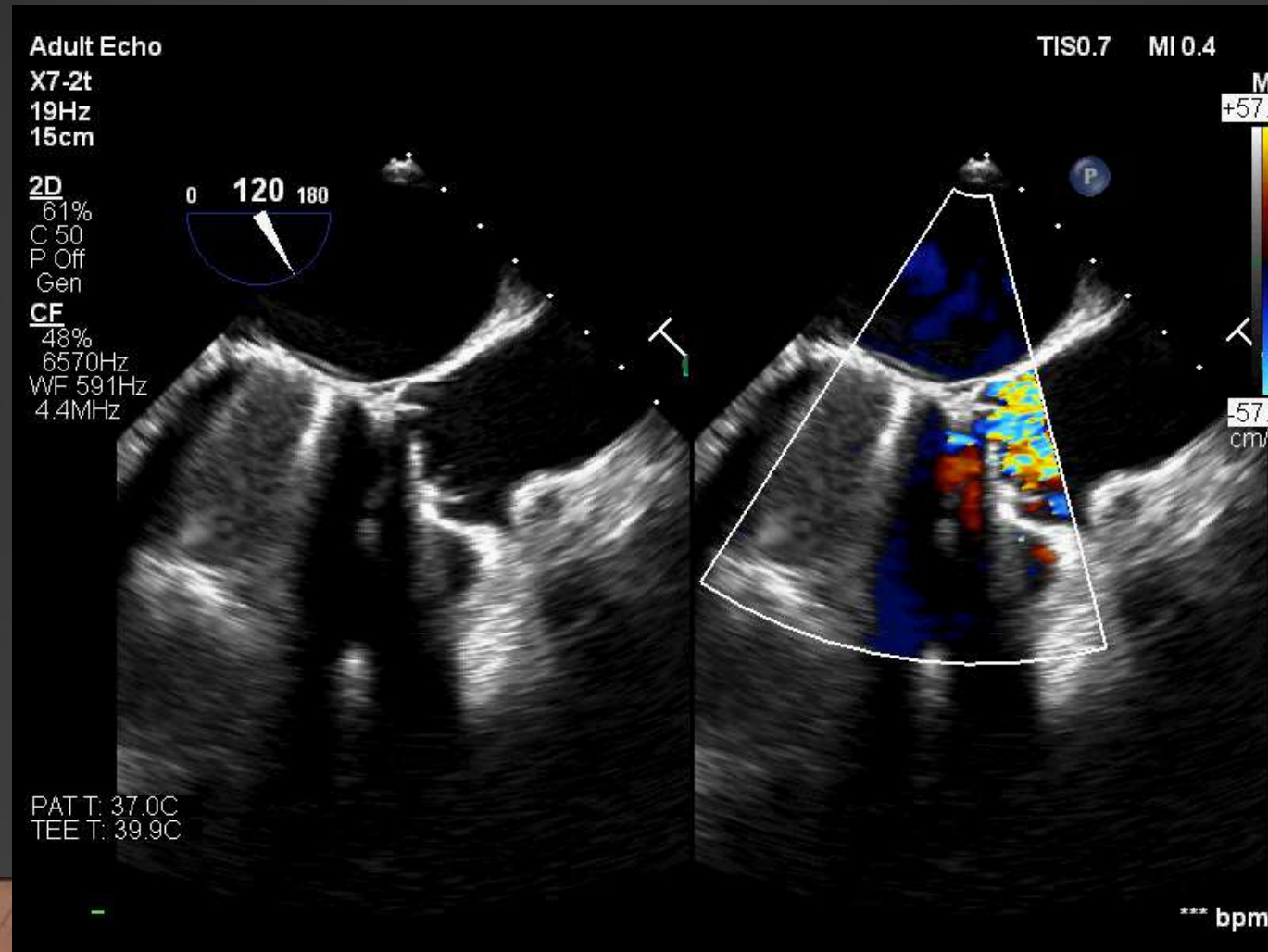


- **Prosthetic valve obstruction**

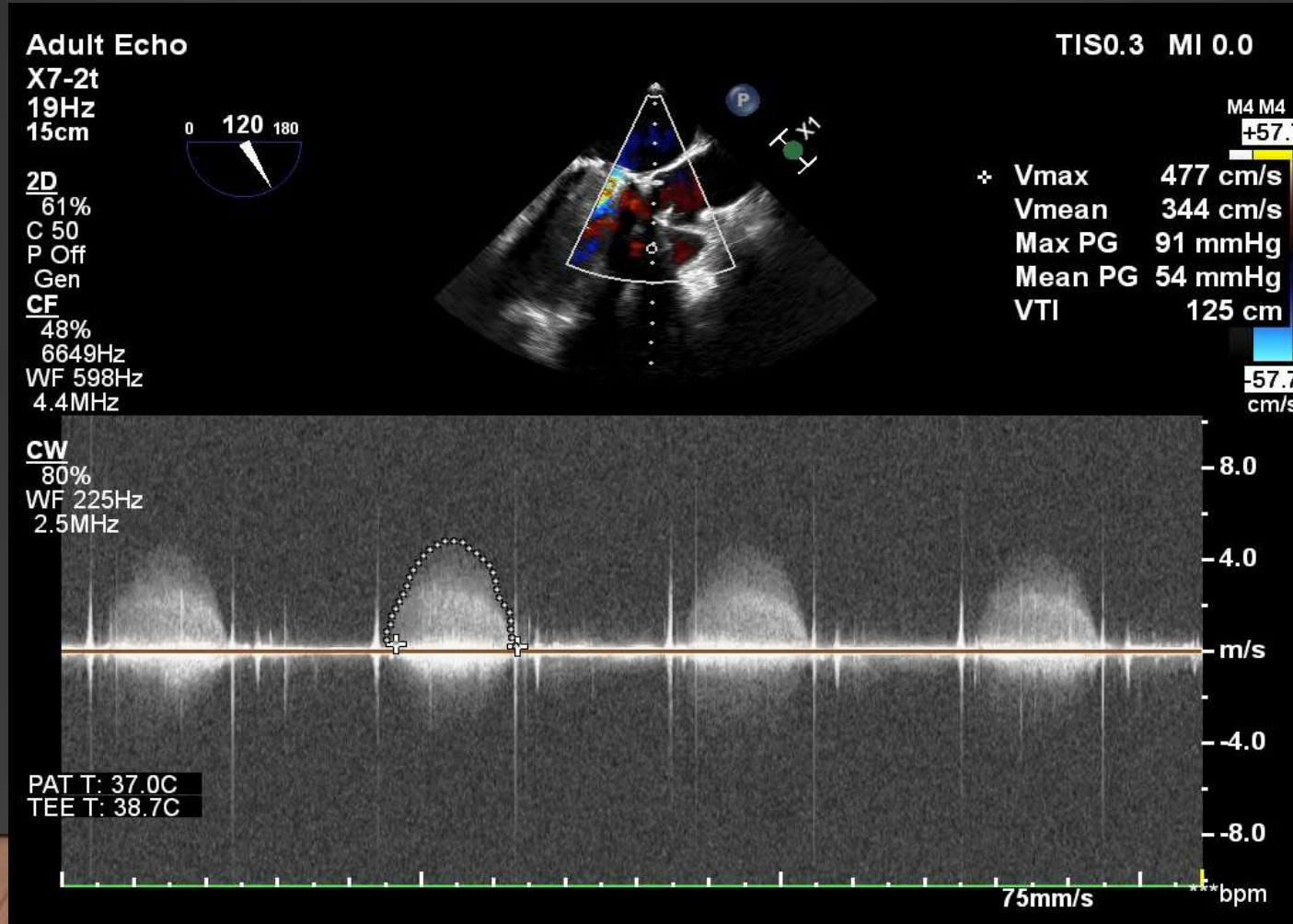
- ? **Pannus**

- ? **Thrombus**

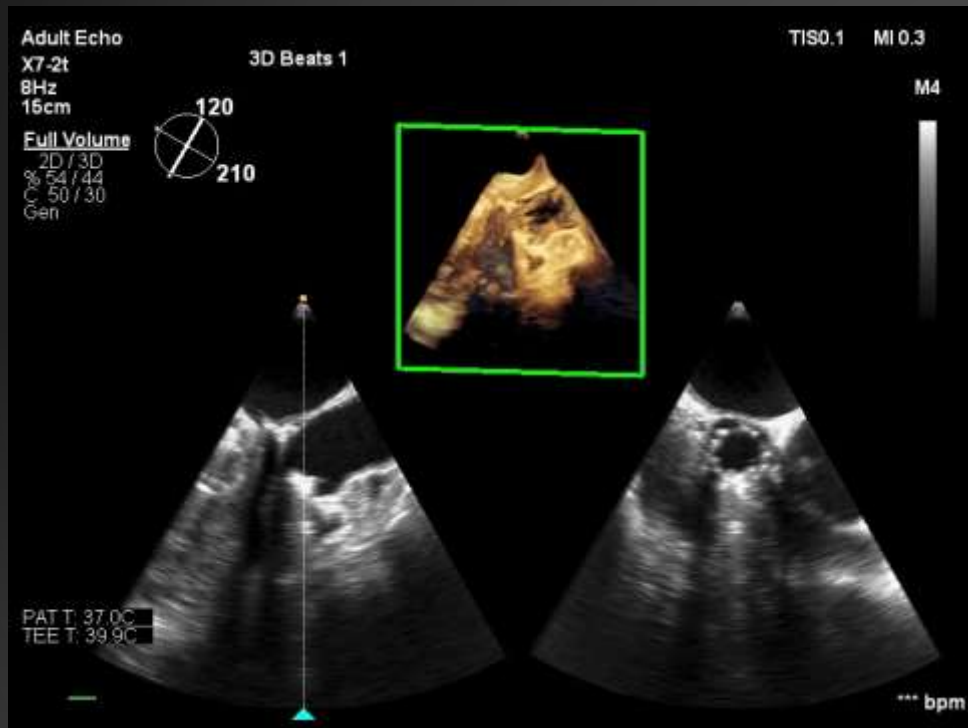
TEE



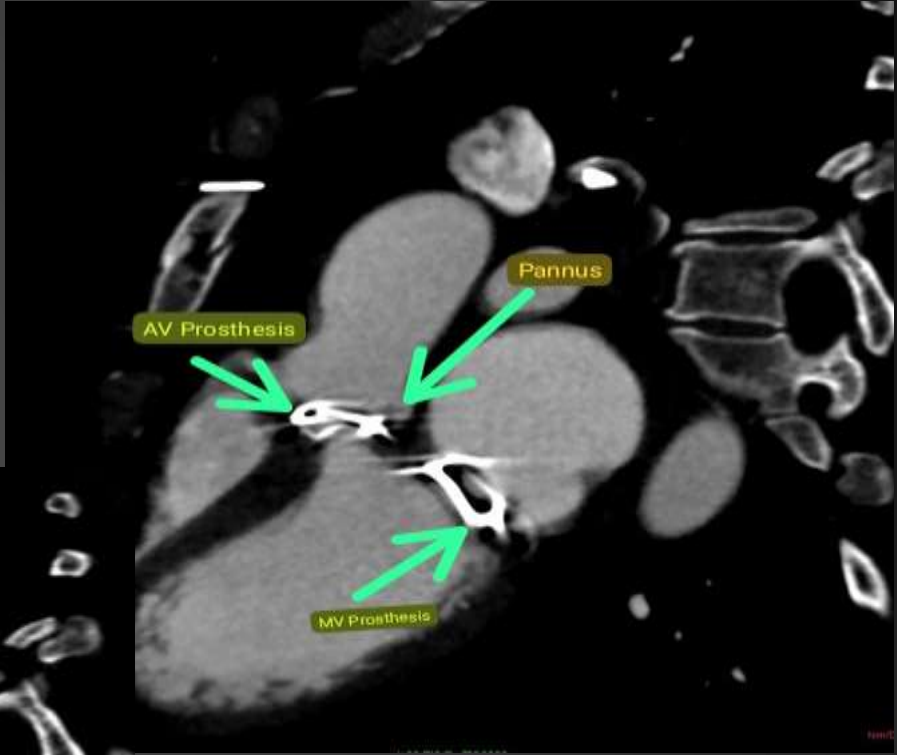
TEE CONT..



3D RECONSTRUCTION



CT



MANAGEMENT

- Final Diagnosis - Pannus
- Advised –Re Do surgery

LEARNING POINTS

Differential diagnosis is required between the various causes of increased transprosthetic gradients:

a- Pannus

b-Thrombus

c-Patient-Prosthesis mismatch

Differential diagnosis between Thrombus and Pannus is made based on Clinical, Echocardiographic , Cardiac CT and morphopathological criteria.

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DIFFERENTIATING POINTS

	Pannus	Thrombus
Chronology	Minimum 12 months from date surgery	Occurs at any time (if late usually associated with pannus)
Evolution of symptoms	Subacute/chronic	Acute
Relation with anticoagulation (low INR)	Poor relationship	Strong relationship
Location	More frequent involving the aortic valve Subvalvular	More frequent involving the mitral valve Supra or subvalvular
Morphology	Small mass, undetected at TEE (semi)circular mass which involve the suture line Centripetal growth Valve restriction can be absent	Larger mass than pannus, detected at TEE Irregular mass attached to valves/hinge point Centrifugal growth Valve restriction
Echo density	>0.7	<0.7 (PPV=87%)

Prosthetic Valve Thrombus Versus Pannus Progress With Imaging

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The opinions expressed in this article are not necessarily those of the editors or of the American Heart Association.

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was possible, the 64-slice MDCT attenuation value of the periprosthetic mass was useful in differentiating between thrombus and pannus. If the HU value of the mass was ≥ 145 , pannus was diagnosed with a high sensitivity and specificity. Response to thrombolysis could also be predicted using the HU value, with complete lysis obtained in all masses with a value < 90 . The authors suggest that these values could be used clinically to guide treatment, with masses with a HU value ≥ 145 going directly to surgery and masses with a HU value < 90 receiving thrombolytics. These findings are encouraging and should be confirmed in larger prospective studies.



That's all I
Thank you