בשיתוף:
העמותה לקרדיולוגיה בישראל (ע"ר)
ISRAEL CARDIOLOGY ASSOCIATION

החוג הישראלי לאקוקרדיוגרפיה
THE ISRAEL WORKING GROUP ON ECHOCARDIOGRAPHY

האיגוד הקרדיולוגי בישראל
ISRAEL HEART SOCIETY

CASE PRESENTATION

Alcohol Septal Ablation & TEER

Nir Flint

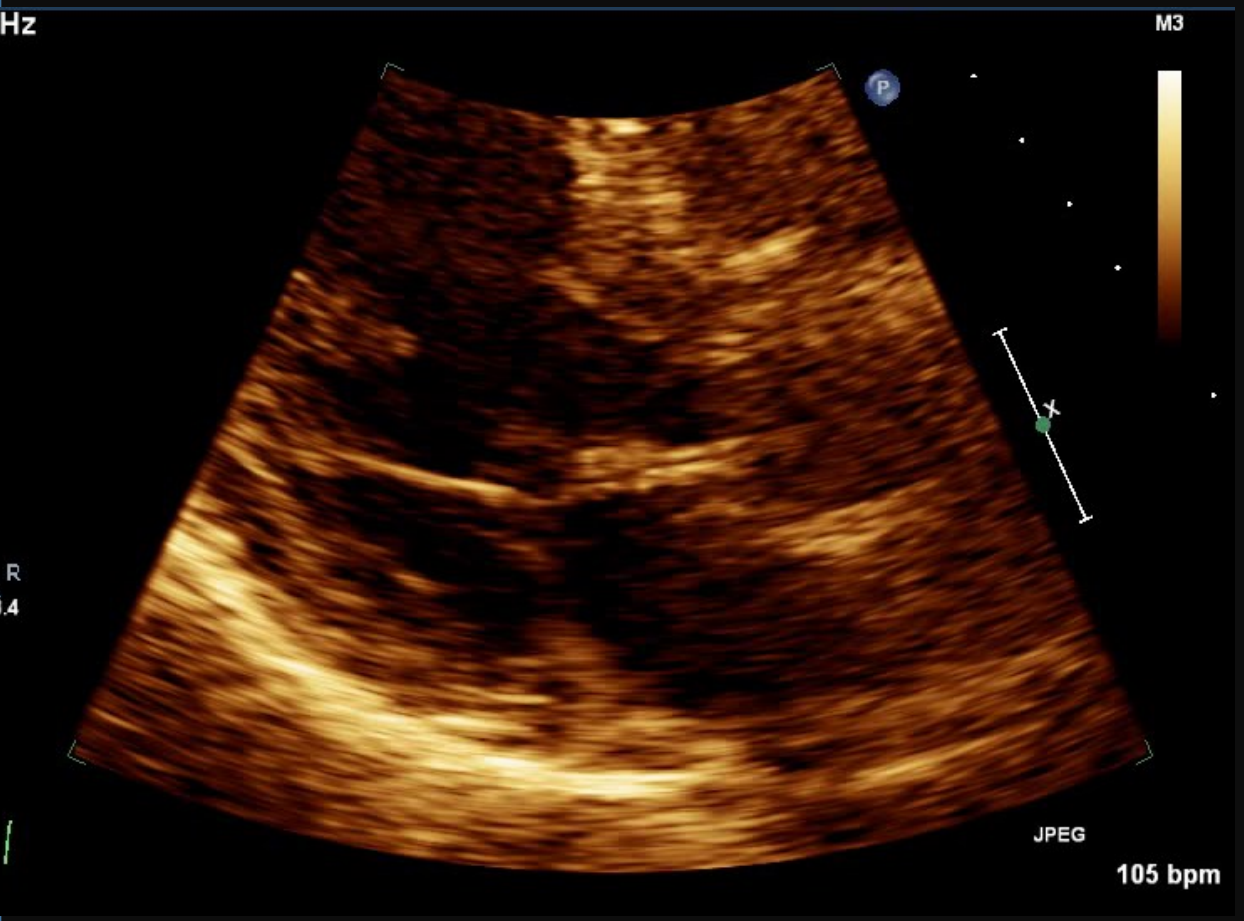
Tel Aviv Sourasky Medical Center

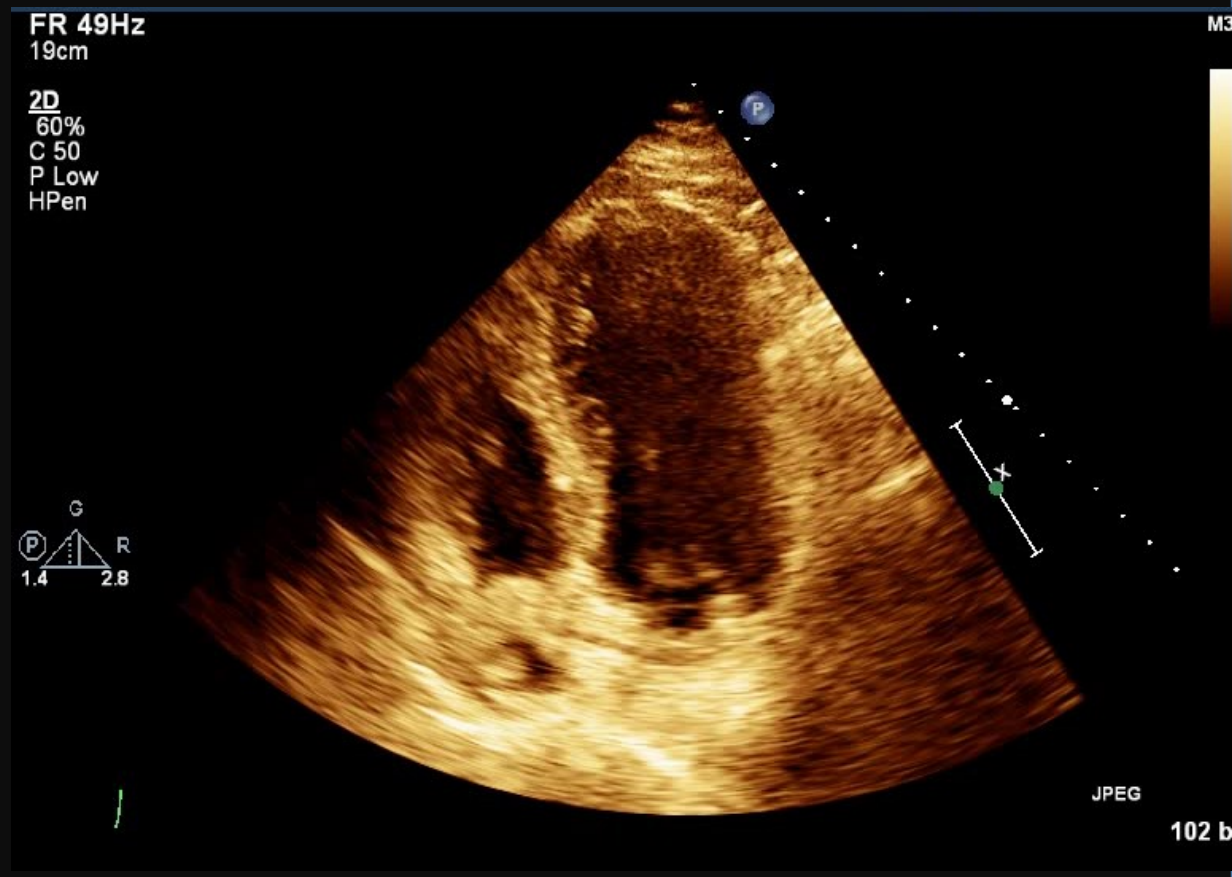
TEL AVIV SOURASKY
MEDICAL CENTER
ICHILOV

Case Presentation

- 50 y/o Male, Healthy.
  - Hypertension
  - Smoker
- 2021: 3 weeks of Fever, night sweats, fatigue.
  - CRP = 84 , HB= 10.5
  - Blood cultures
  - Admitted to Internal Medicine (Fever of Unknown Origin)
  - TTE

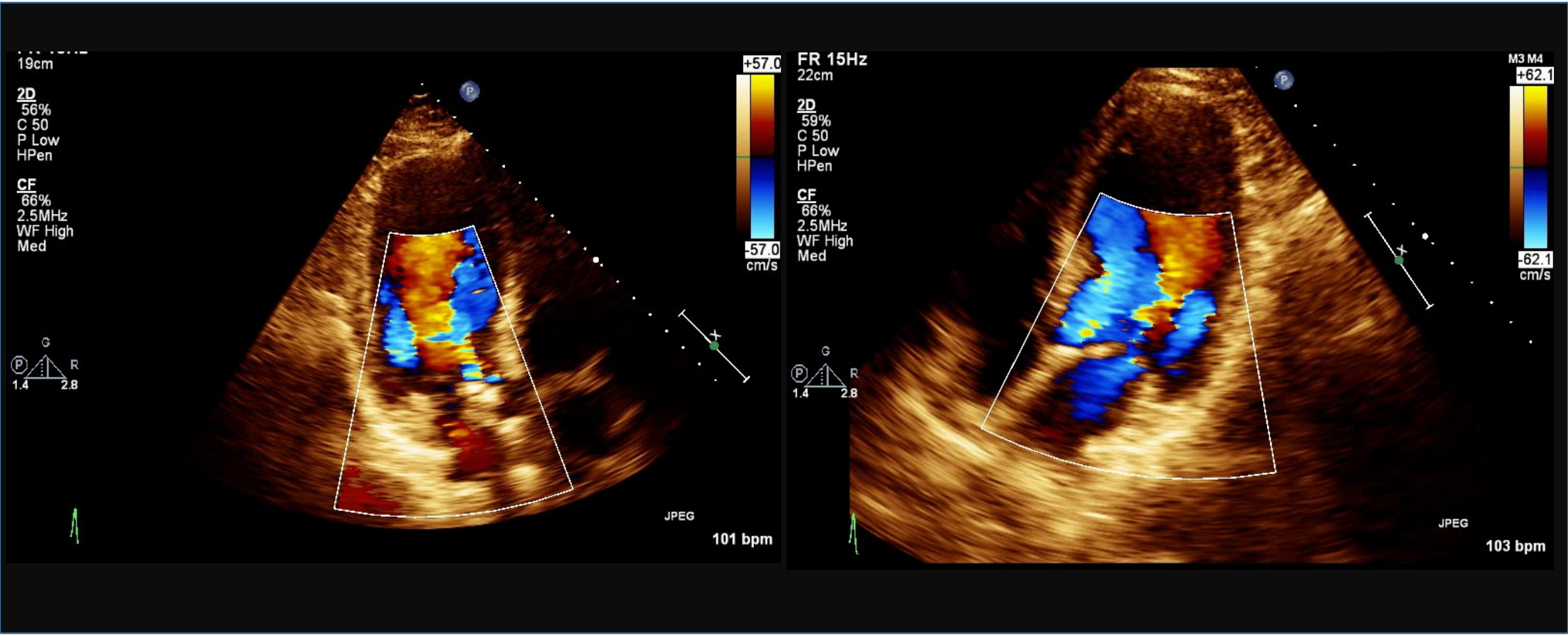
TTE 01/07/2021





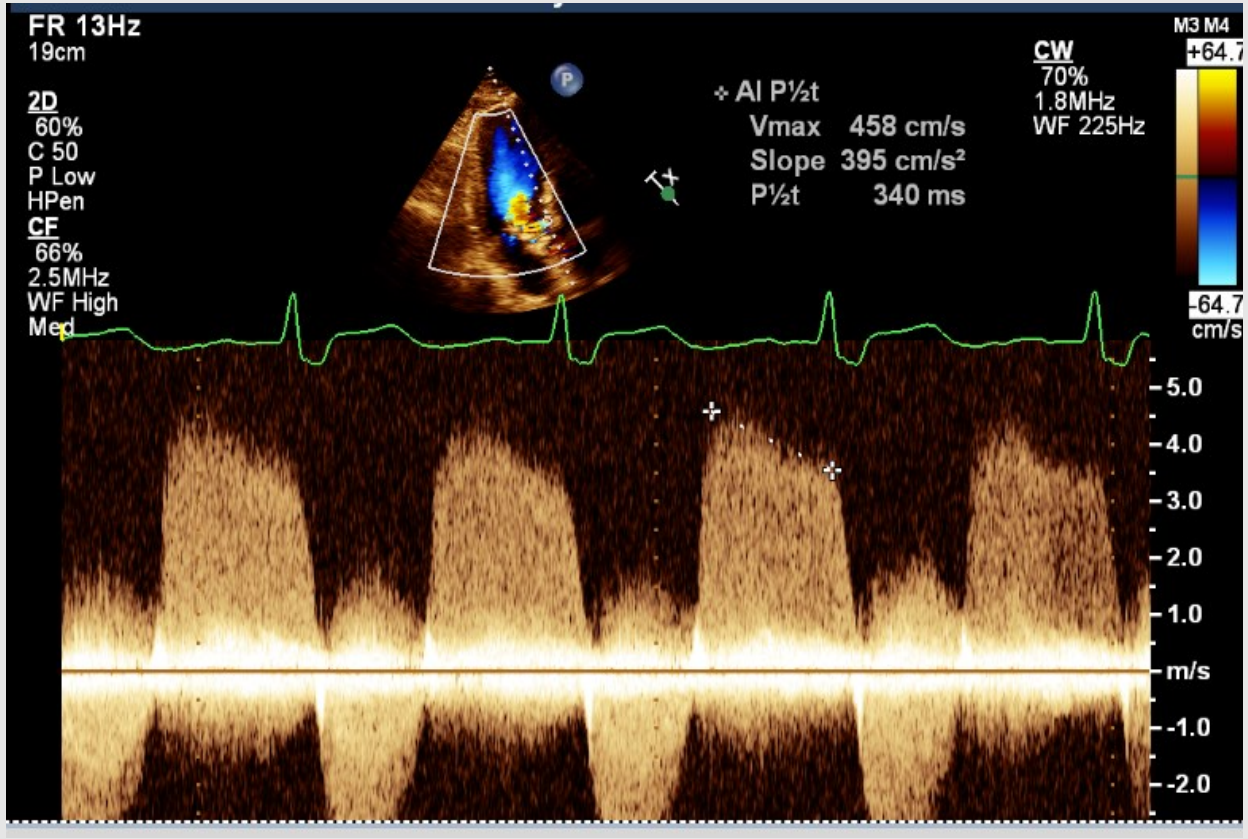
TEL AVIV SOURASKY
MEDICAL CENTER
ICHILOV

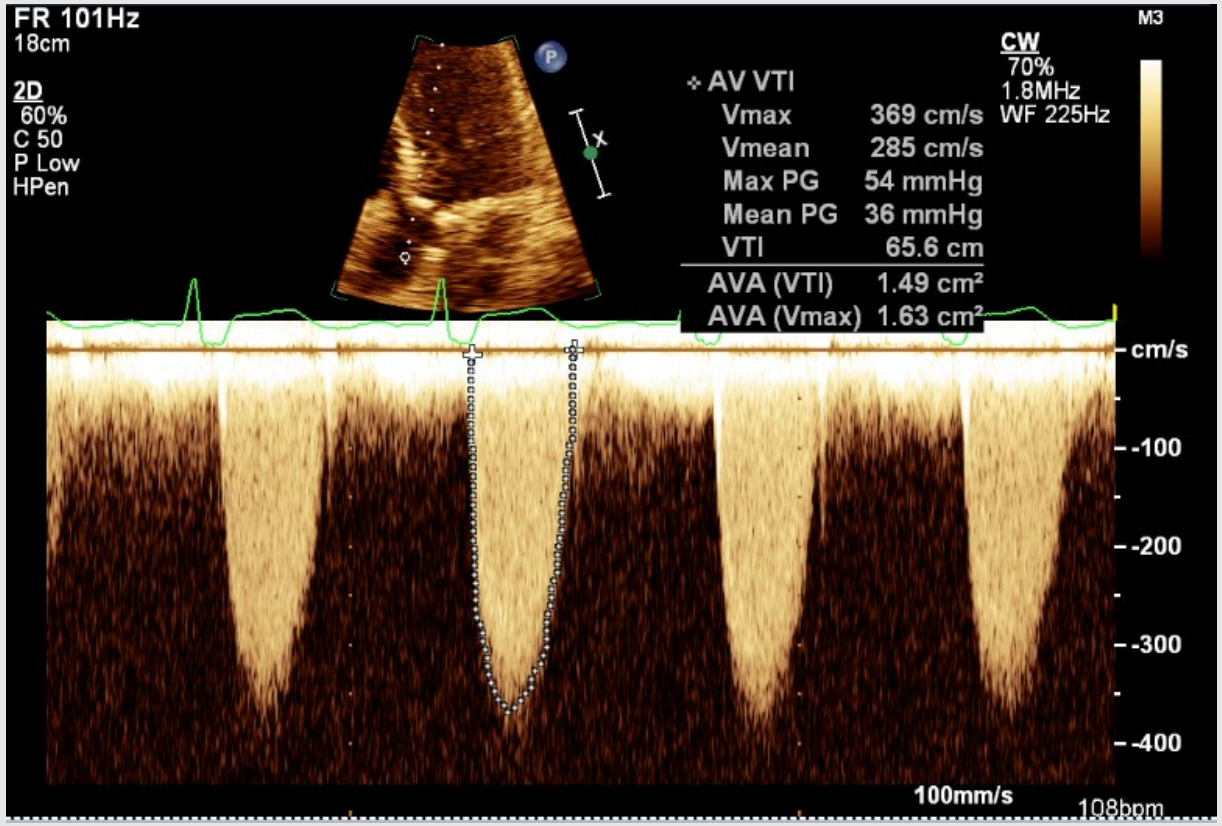
TTE 01/07/2021



TEL AVIV SOURASKY MEDICAL CENTER ICHILOV

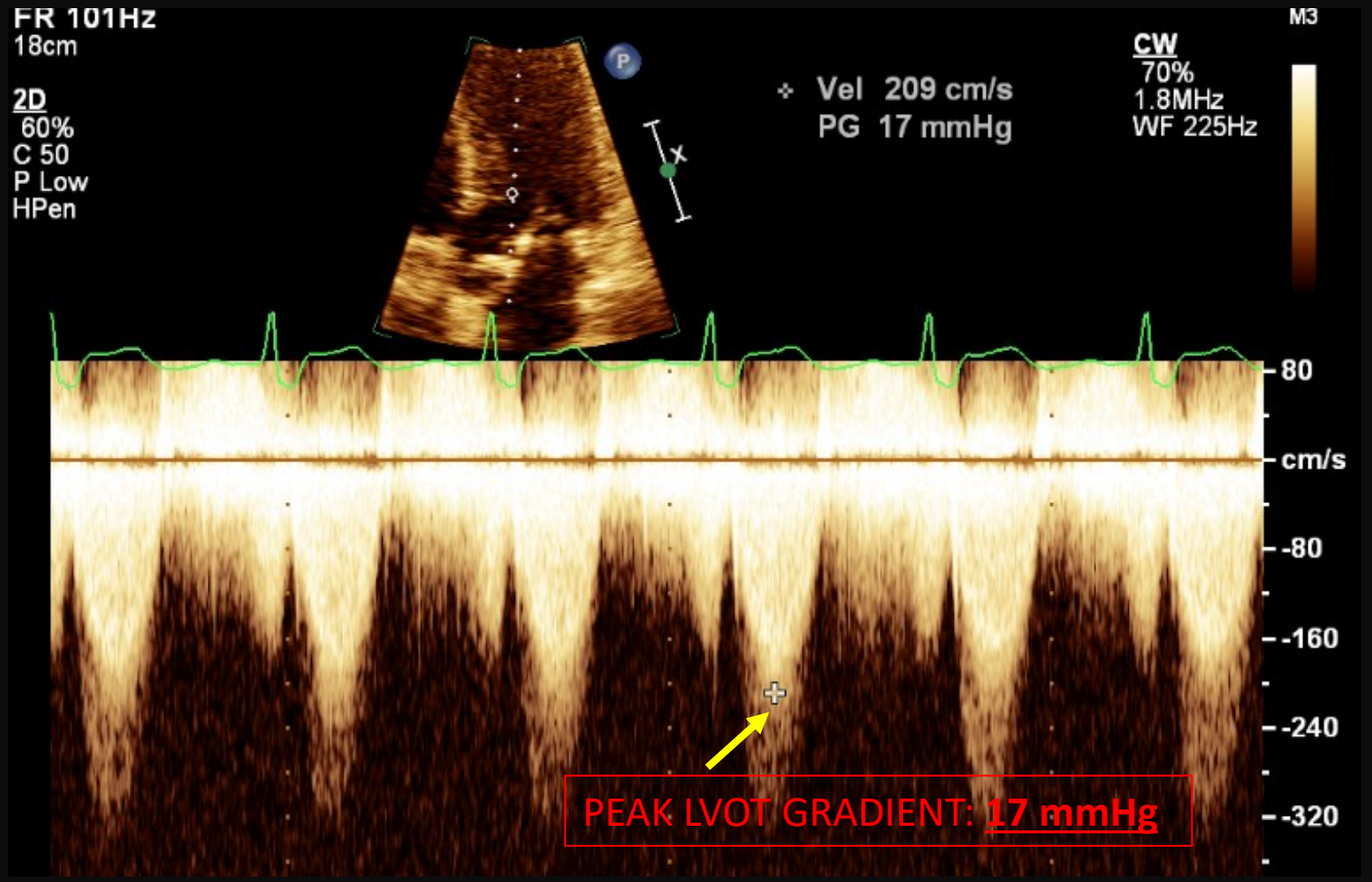
TTE 01/07/2021





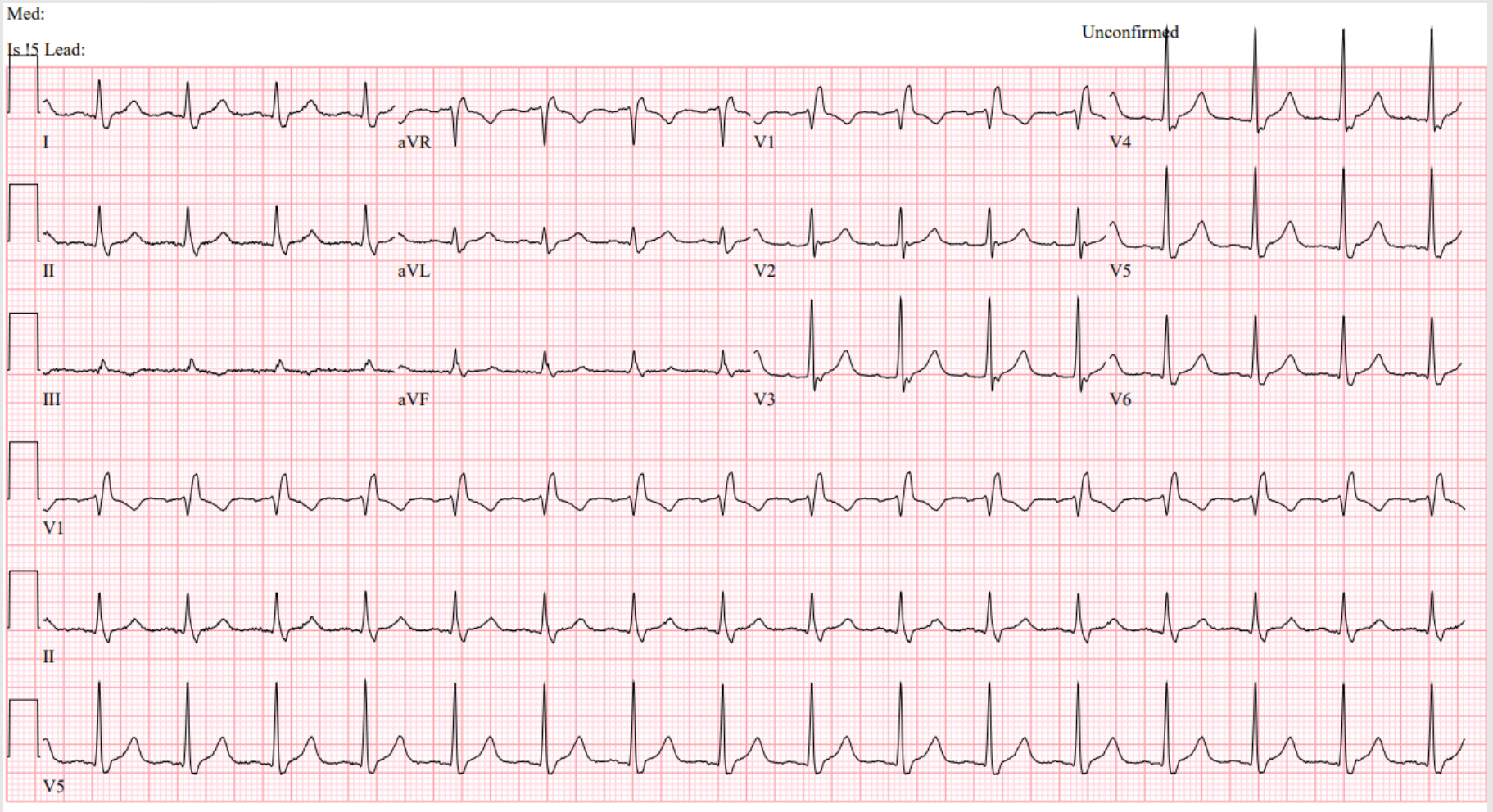
TEL AVIV SOURASKY MEDICAL CENTER ICHILOV

TTE 01/07/2021



TEL AVIV SOURASKY MEDICAL CENTER ICHILOV

ECG

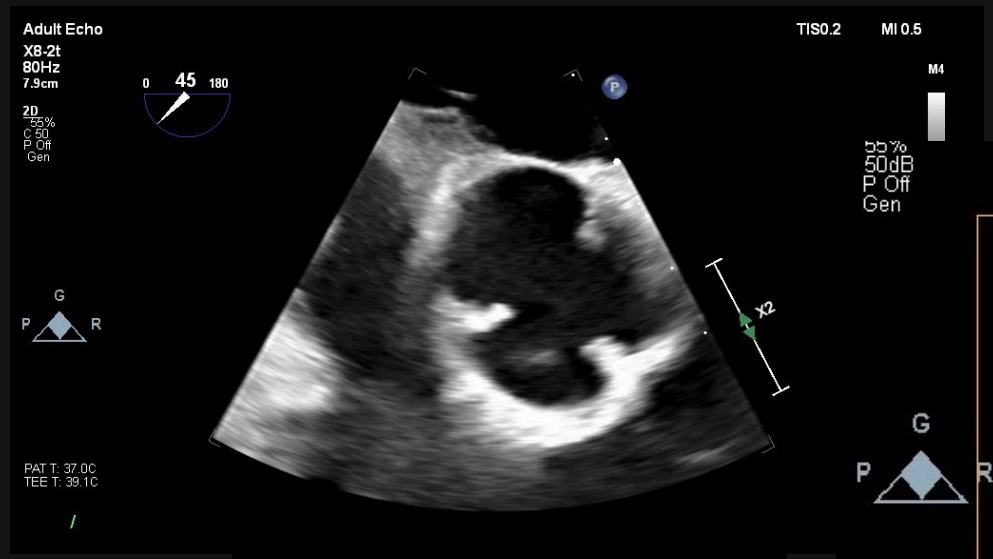


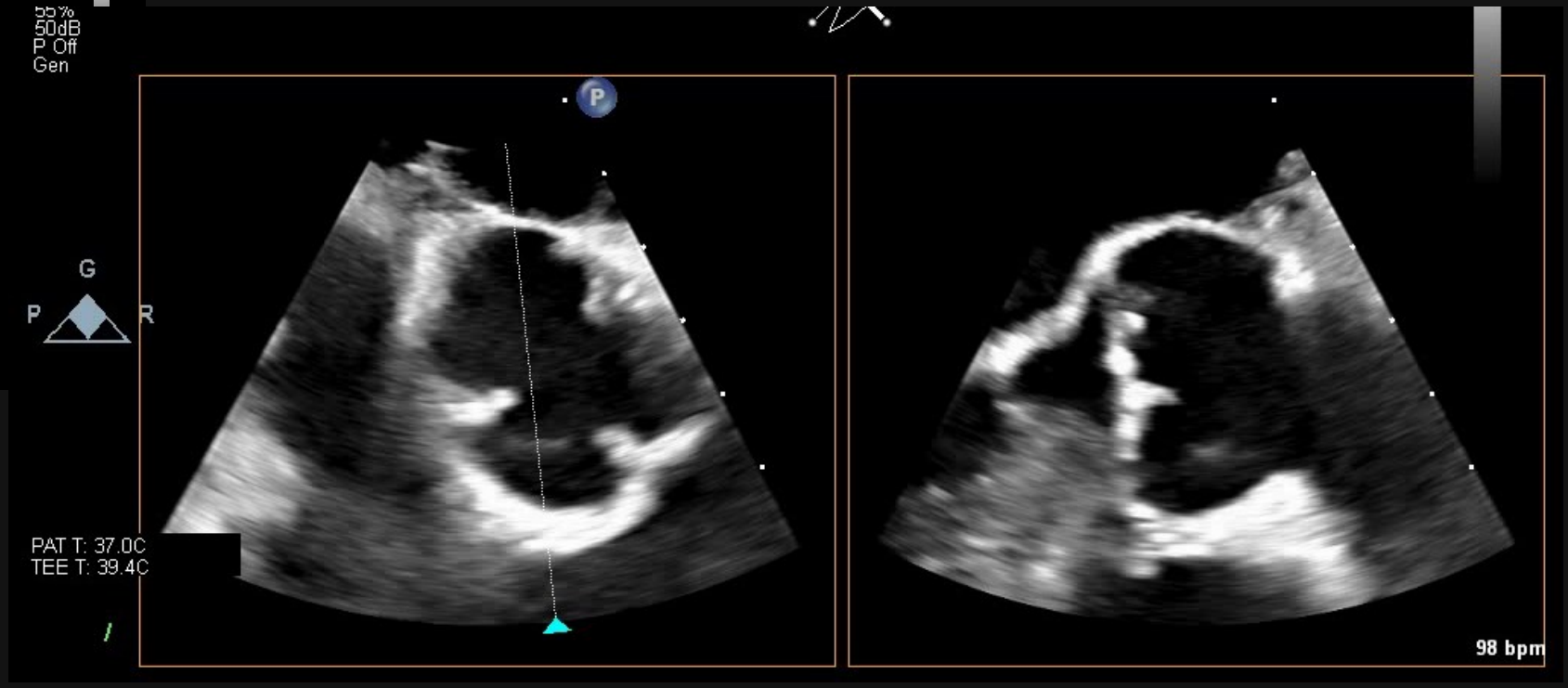
TEL AVIV SOURASKY MEDICAL CENTER ICHILOV

Case Presentation

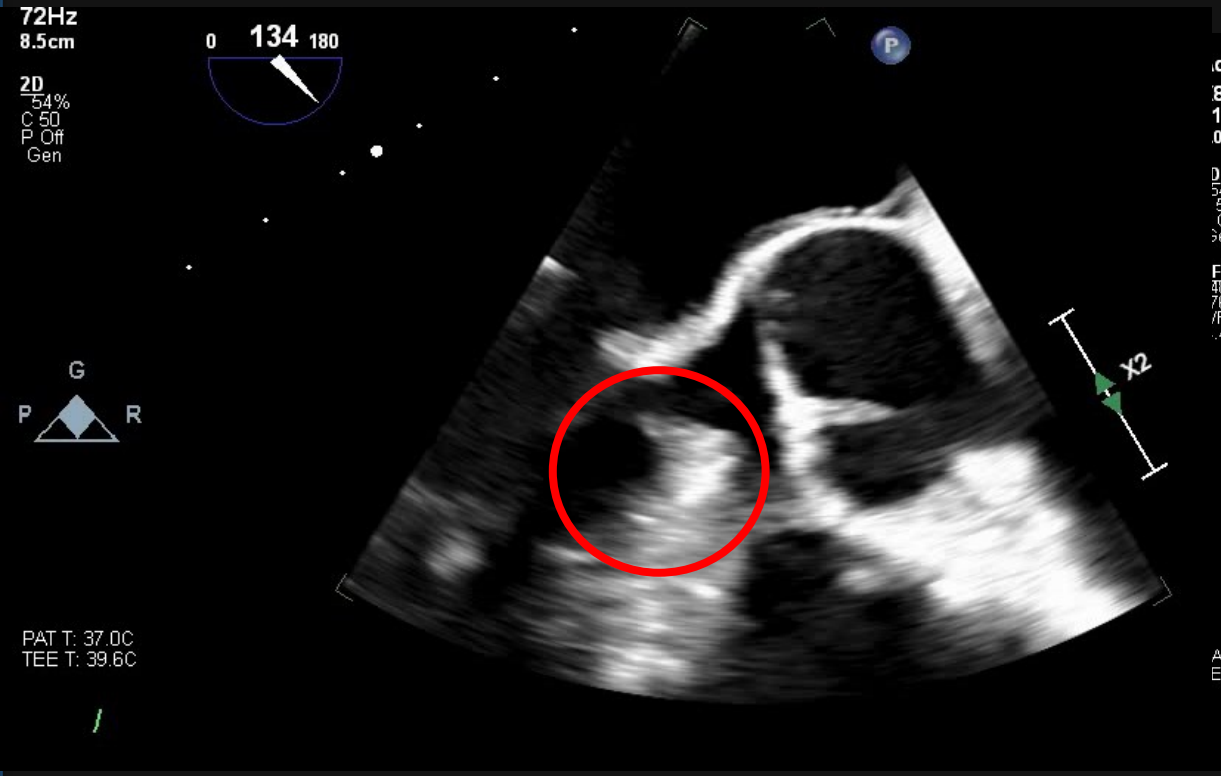
- 50 y/o Male, Healthy.
  - Hypertension
  - Smoker
- 2021: FUO - 3 weeks of Fever, night sweats, fatigue.
  - CRP = 84 , HB= 10.5
  - Admitted to Internal Medicine
  - TTE
  - Blood cultures – Positive for Strep. Sanguinis
  - What's next?

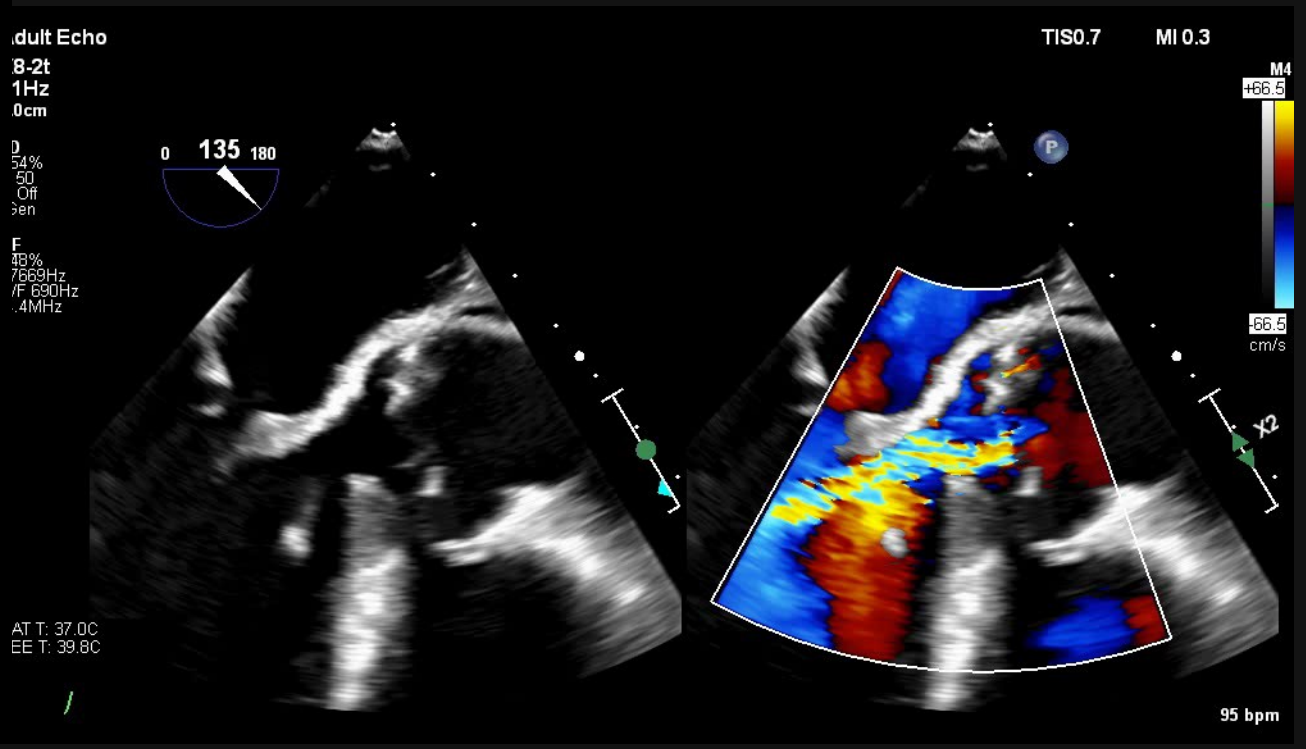
TEE 04/07/2021





TEE 04/07/2021





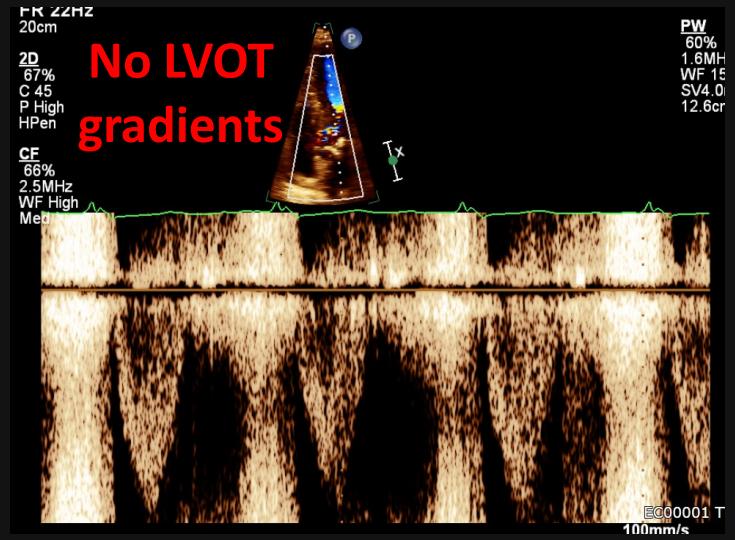
Case Presentation

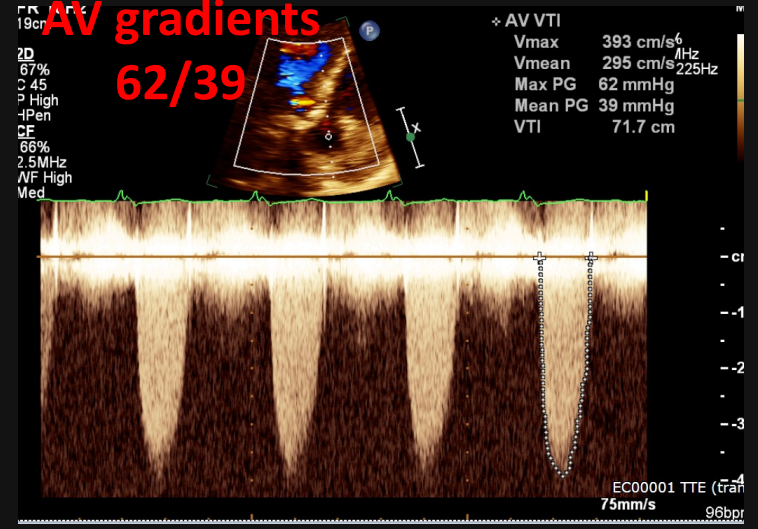
- Strep. Endocarditis
- PICC Line
- IV Rocephin for 6 weeks.
- Lost to Follow up…

Case Presentation

- 2/12/2022 ER visit
  - Chest pain
  - Elevated Troponin 202
  - Admitted to Internal Medicine (NSTEMI).
  - TTE

TTE 04/12/2022





Moderate to severe aortic valve stenosis with moderate regurgitation.
Normal LV size with normal global LV systolic function(LVEF~55-60%).
Severe concentric LVH.
Grade 2 diastolic dysfunction.
Normal RV size and function.
Mitral annulus calcification.
Small pericardial effusion.

Case Presentation

- Cath:
  - Distal RCA 70% stenosis.
  - Mean AV gradient 53mmHg.

- Transferred to Cardiac surgery for AVR + CABG

Surgery: AVR + CABG

- 07/12/2022 Surgery:
  - Severe LV hypertrophy
  - Calcified Bicuspid Aortic valve → **Mechanical AVR** (ATS 22)
  - Sub aortic membrane→ **Resected**

Surgery: AVR + CABG

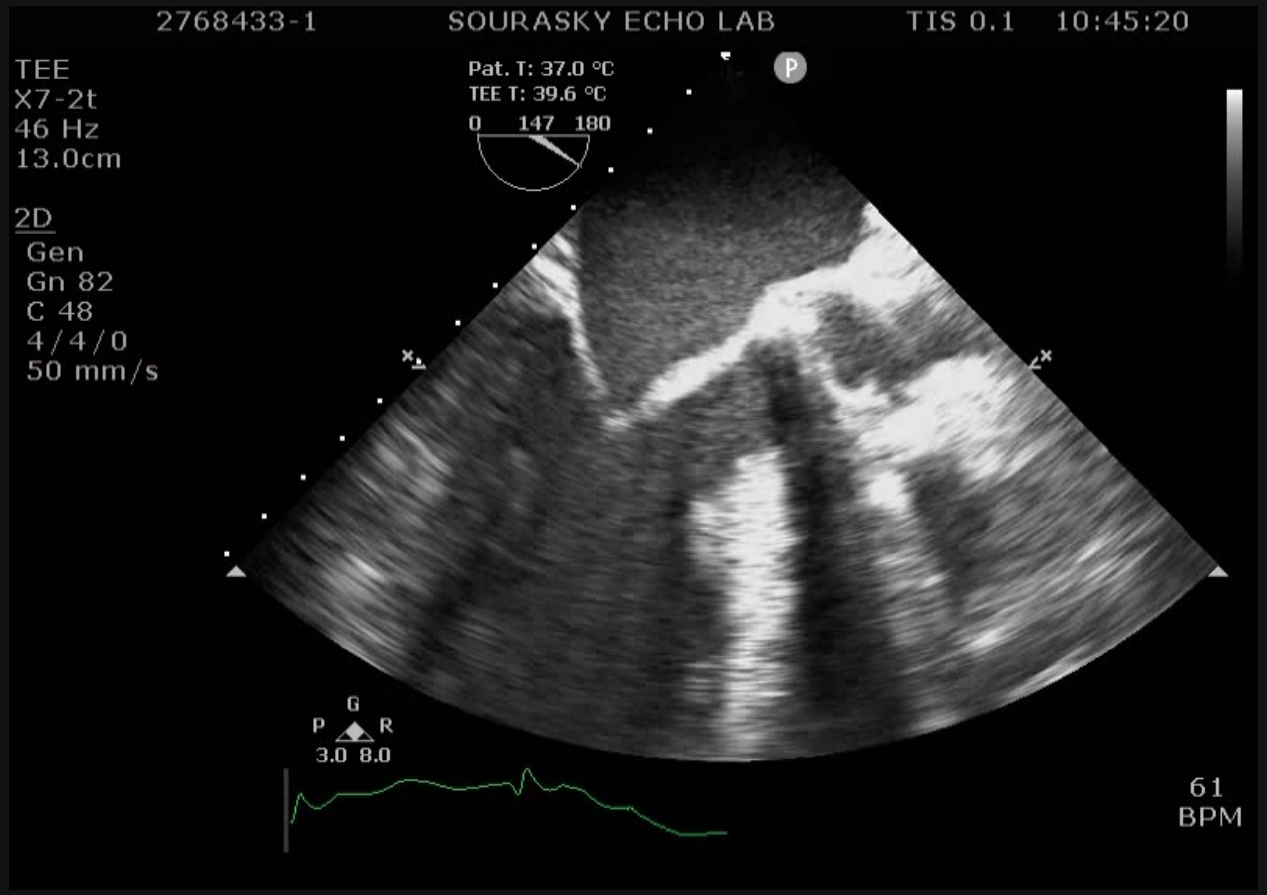
- 07/12/2022 Surgery:
  - Severe LV hypertrophy
  - Calcified Bicuspid Aortic valve → **Mechanical AVR** (ATS 22)
  - Sub aortic membrane→ **Resected**

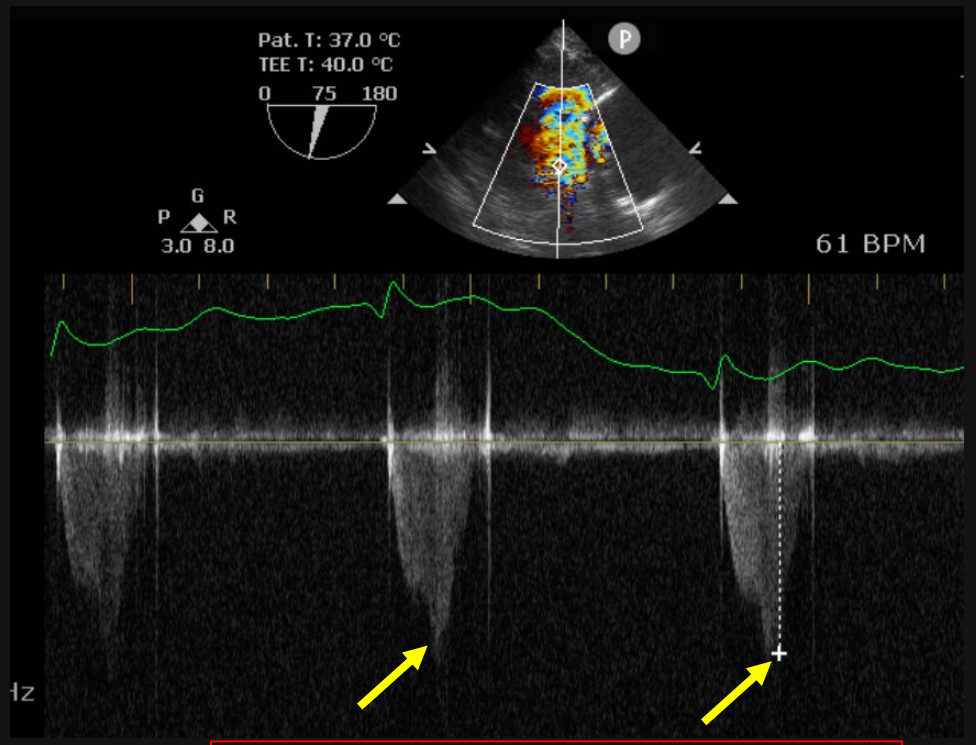
  Off pump→ Severe LV dysfunction, no flow in Lt. main
  Urgent LIMA to LAD
  Partial LV recovery
  Leaves OR on VA ECMO

Post AVR + CABG

- Prolonged ICU stay
  - Re-sternotomy for bleeding
  - Weaned from VA ECMO
  - Respiratory failure - VV ECMO
  - Tracheostomy
  - COVID
  - **Labile blood pressure**
  - **Refractory pulmonary edema**
  - 27/12/2022 TEE

ICU Bedside TEE 27/12/2022

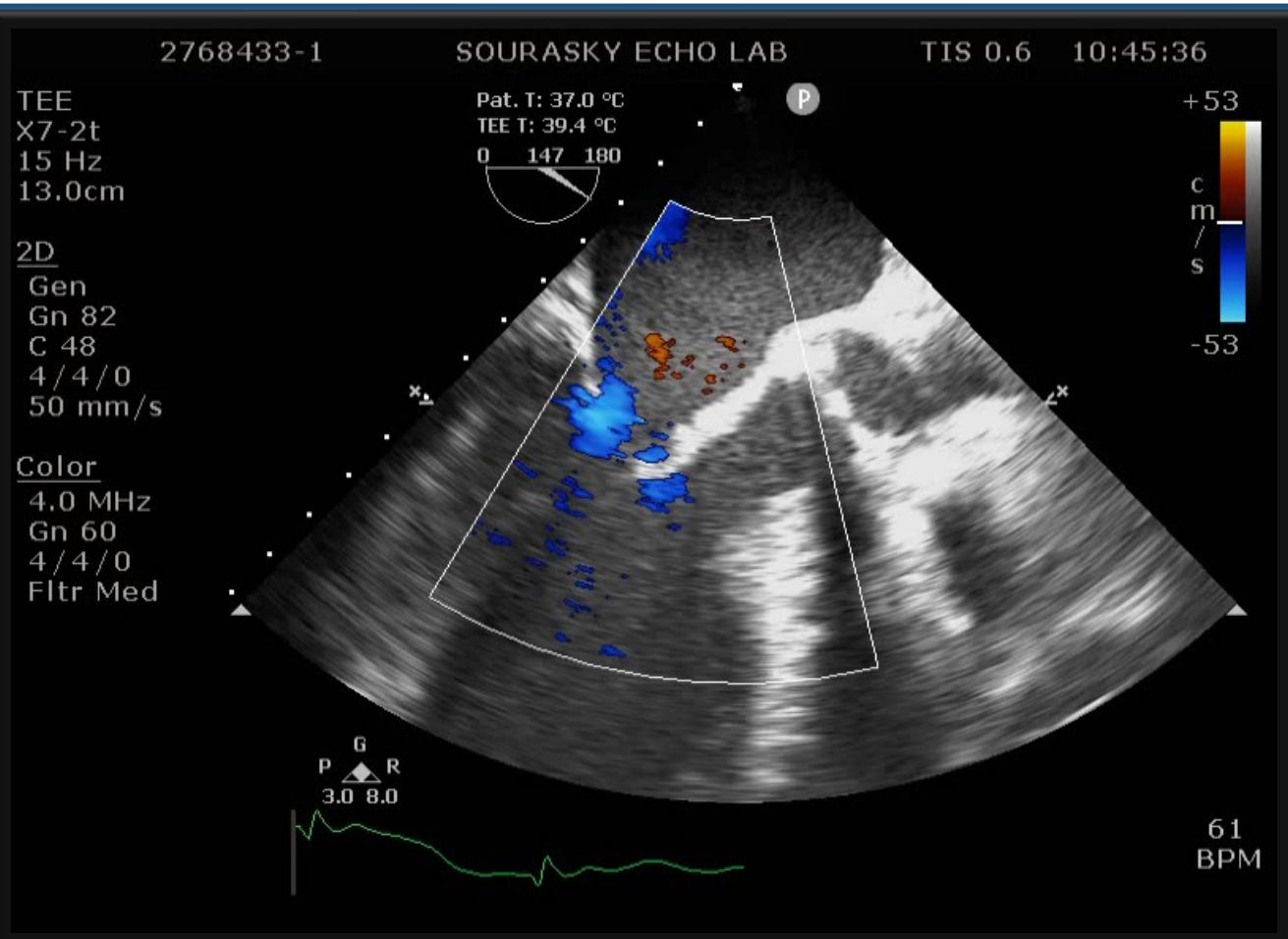


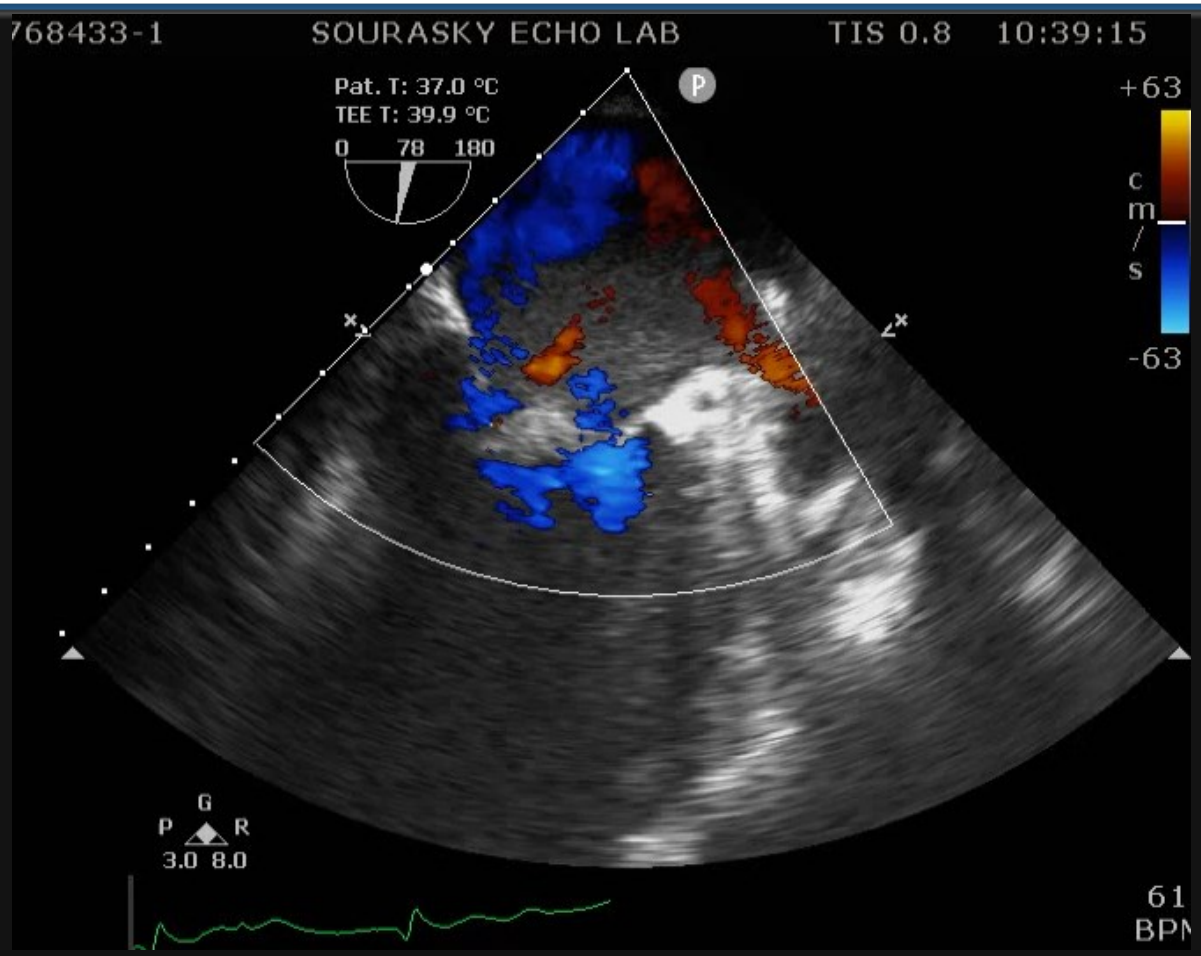


PEAK LVOT GRADIENT: **111mmHg**

TEL AVIV SOURASKY MEDICAL CENTER ICHILOV

ICU Bedside TEE 27/12/2022





TEL AVIV SOURASKY MEDICAL CENTER ICHILOV

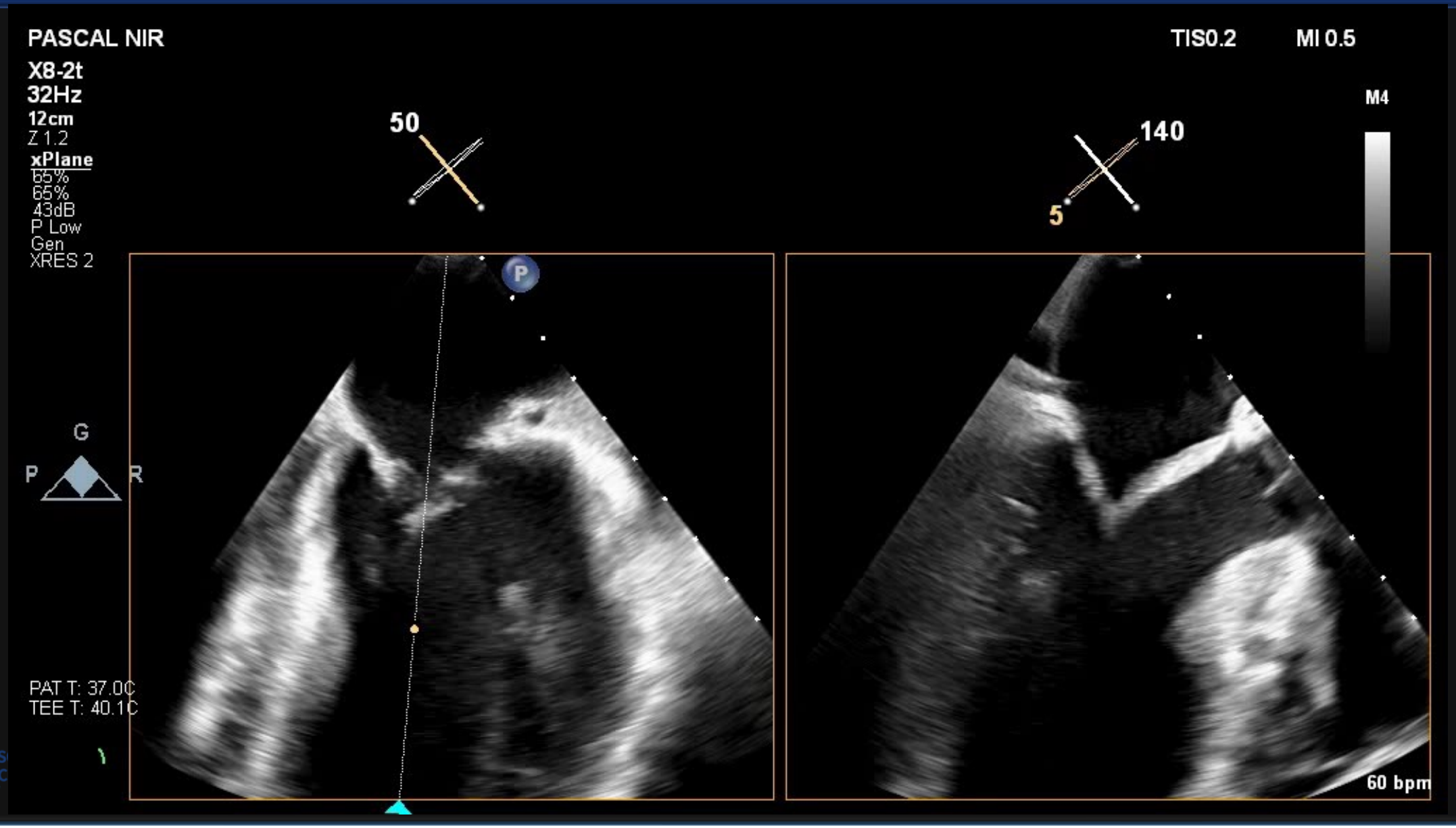
Post AVR + CABG

- Prolonged ICU stay
  - **Beta blockers, Disopyramide**
  - **Unable to wean from ventilation**

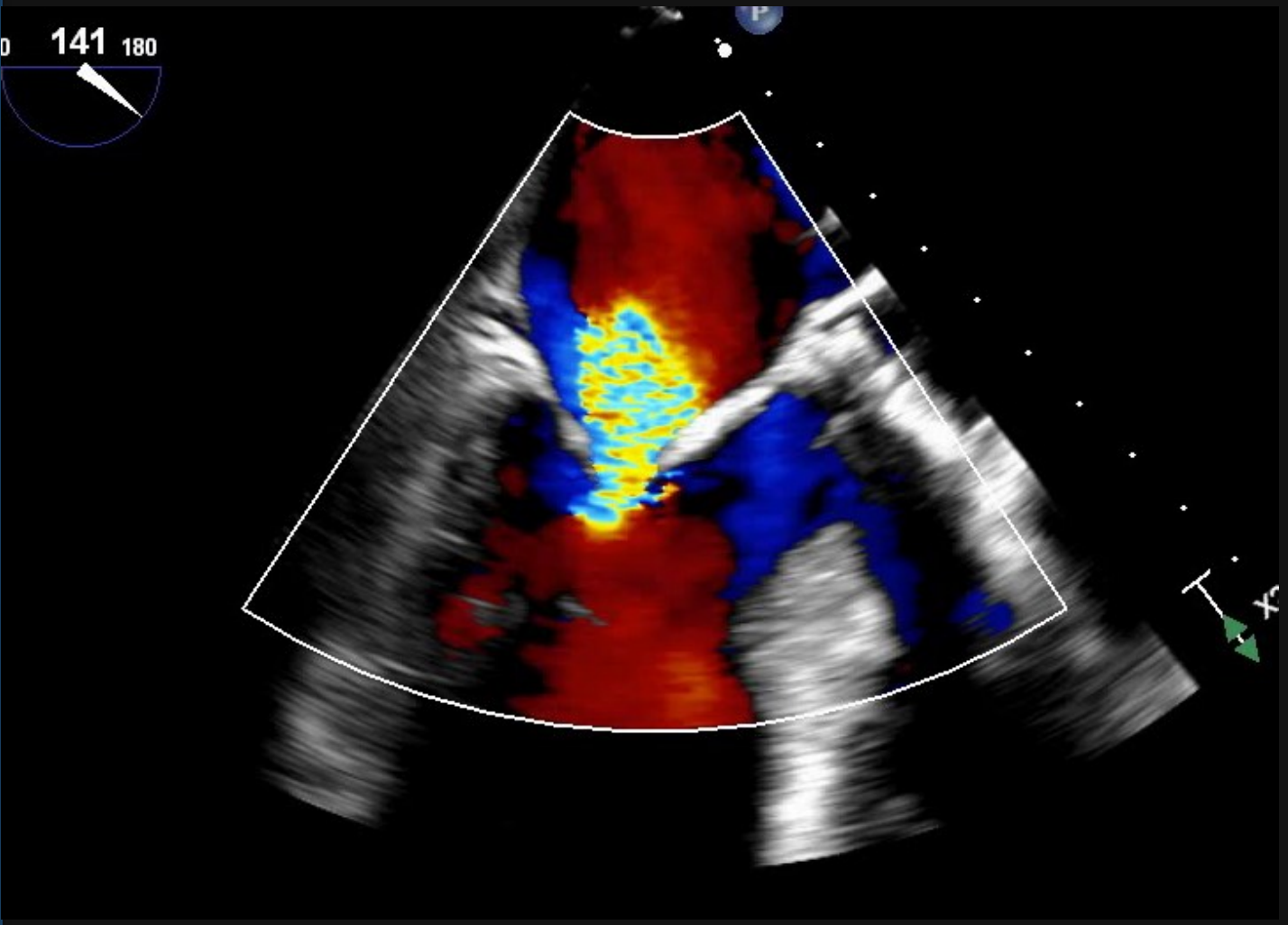
Procedure 10/01/2023
Septal ablation and Mitral edge-to-edge repair (TEER)

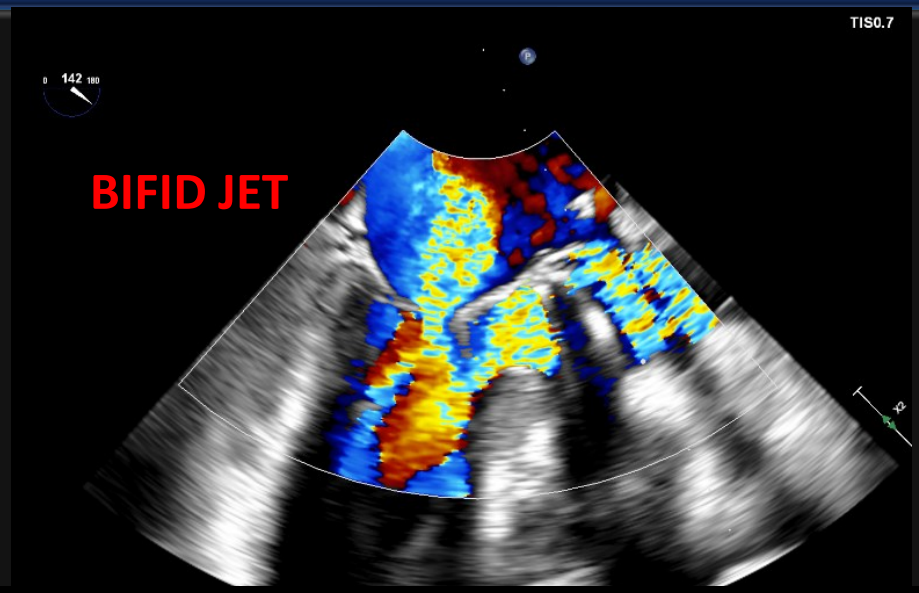
TEL AVIV SOURASKY
MEDICAL CENTER
ICHILOV

Baseline Procedural TEE

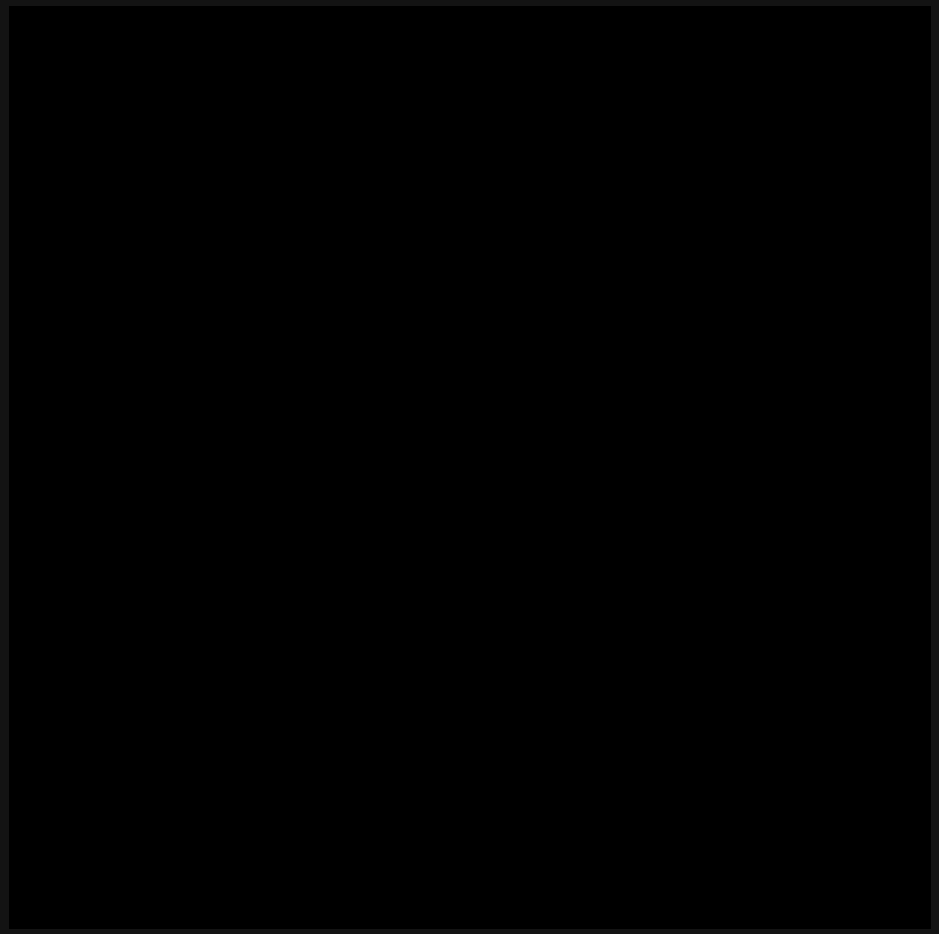


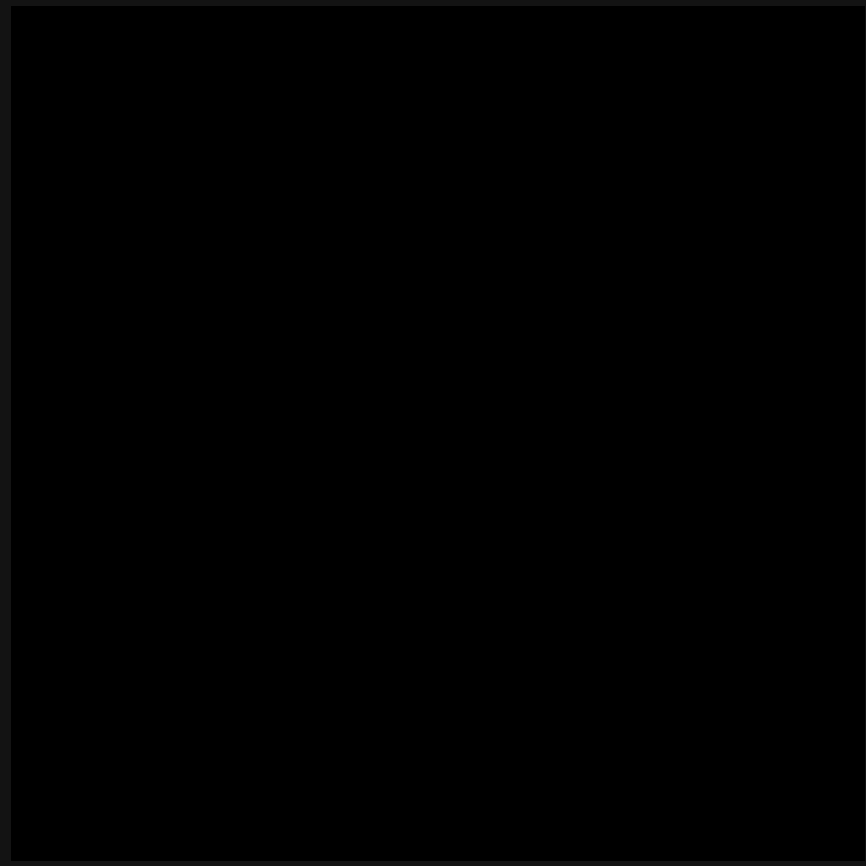
Baseline Procedural TEE





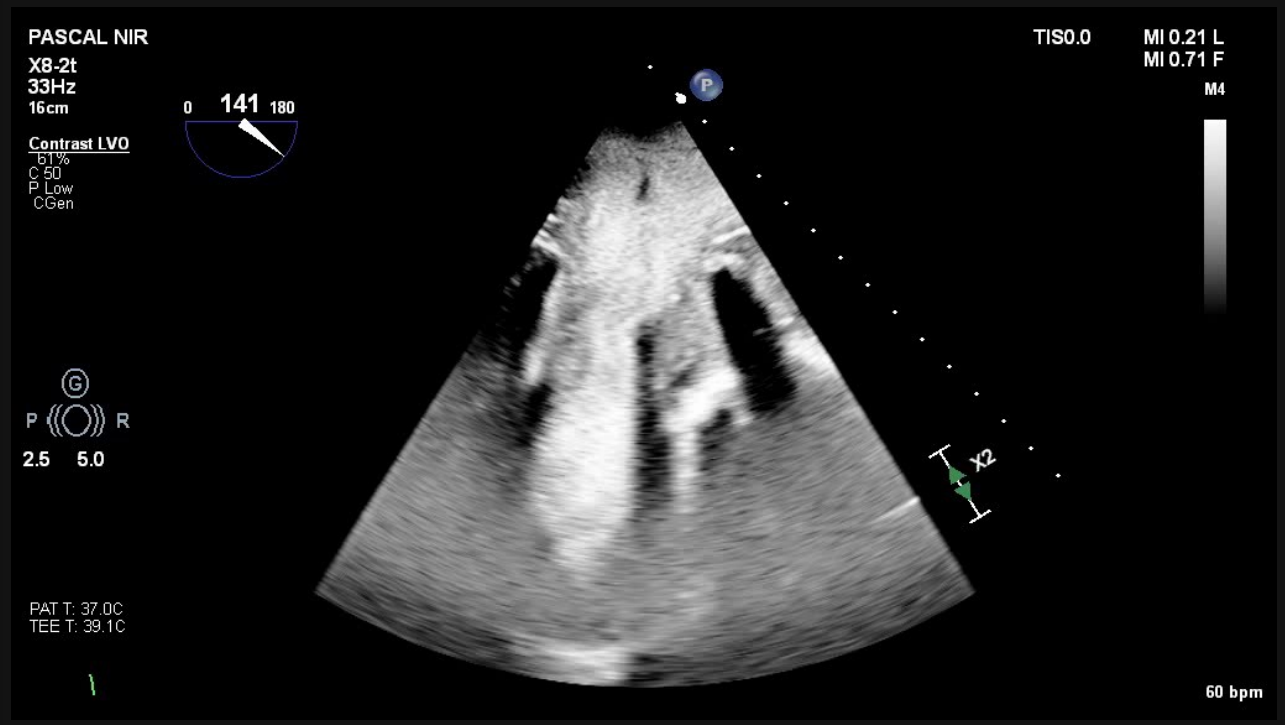
Septal Ablation

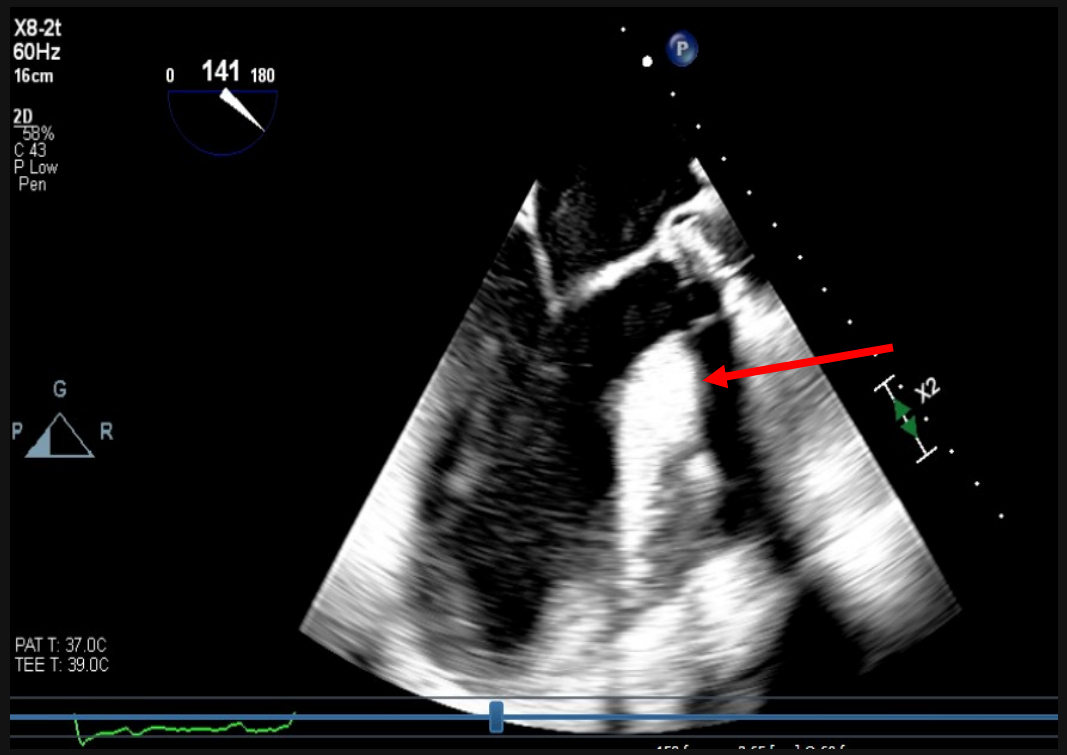




TEL AVIV SOURASKY
MEDICAL CENTER
ICHILOV

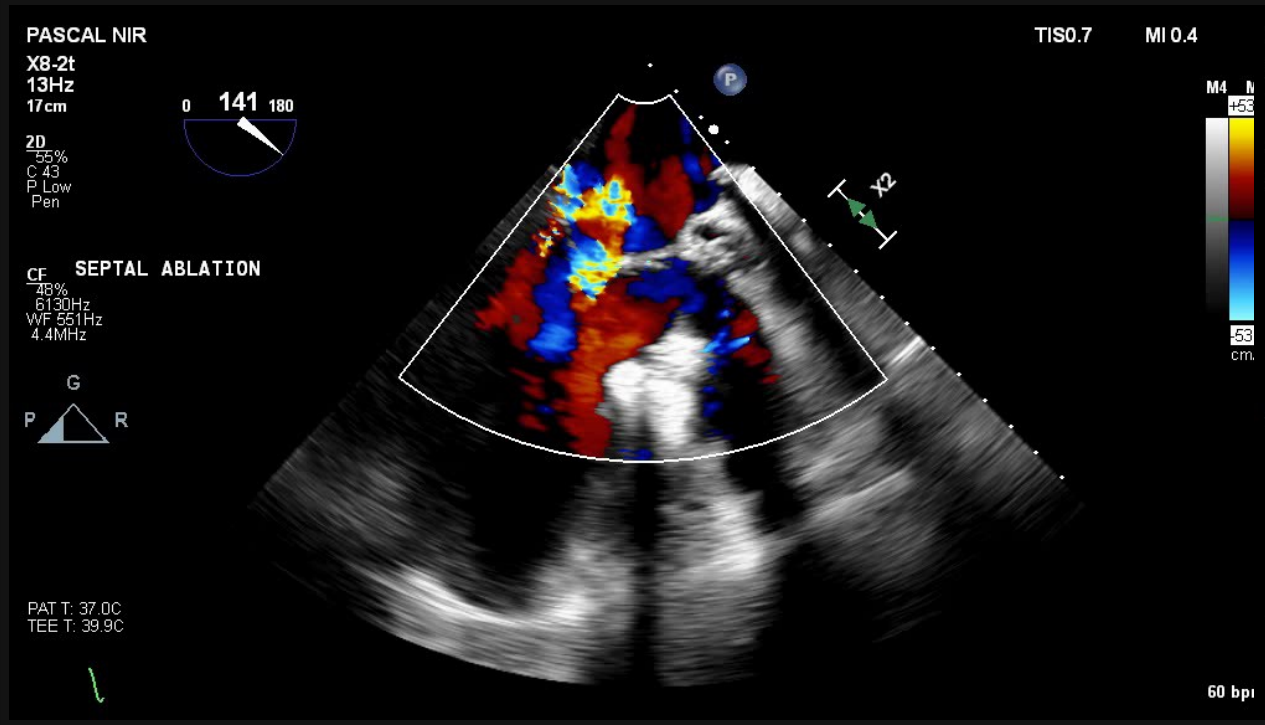
Septal Ablation – Intra coronary echo contrast

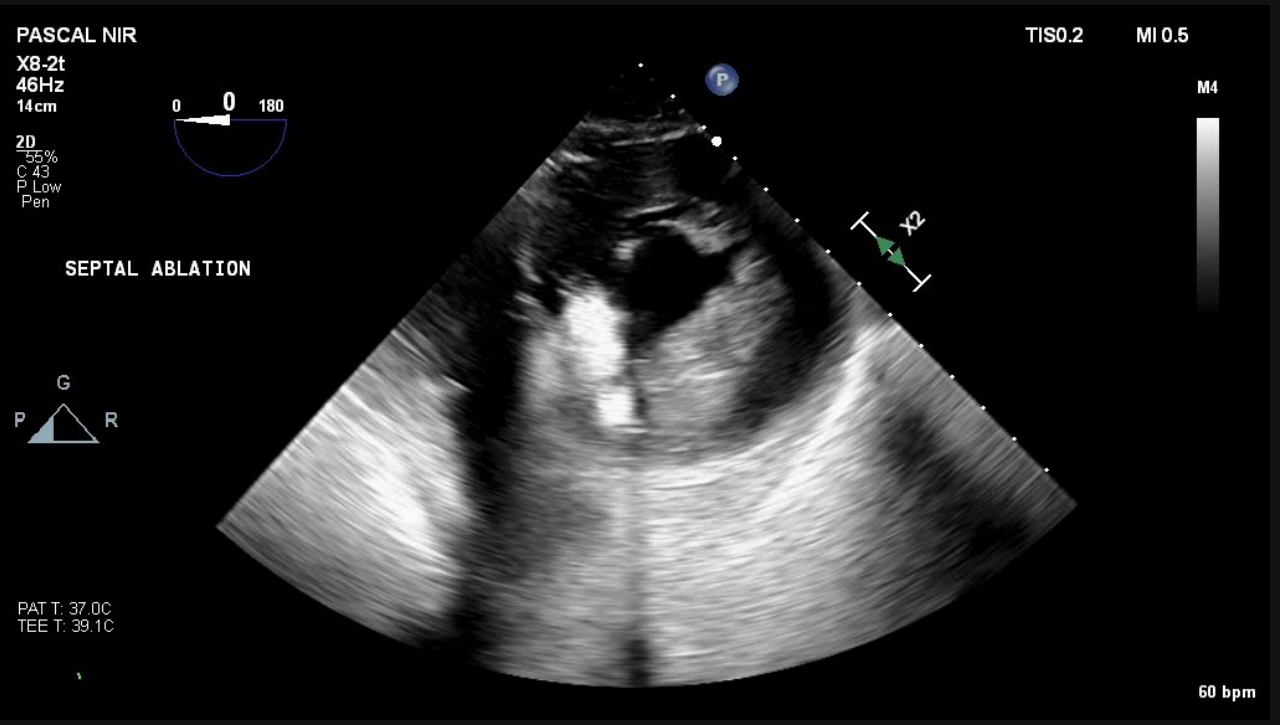




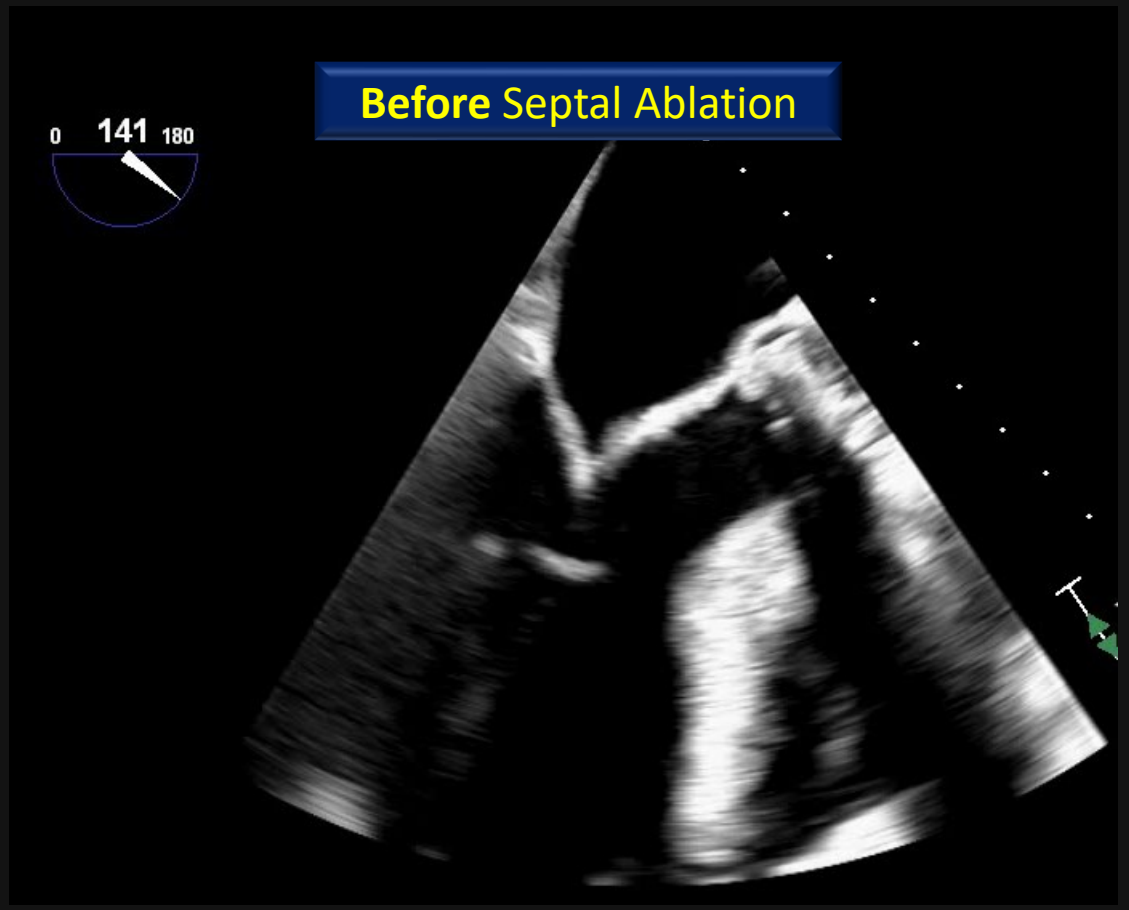
TEL AVIV SOURASKY MEDICAL CENTER ICHILOV

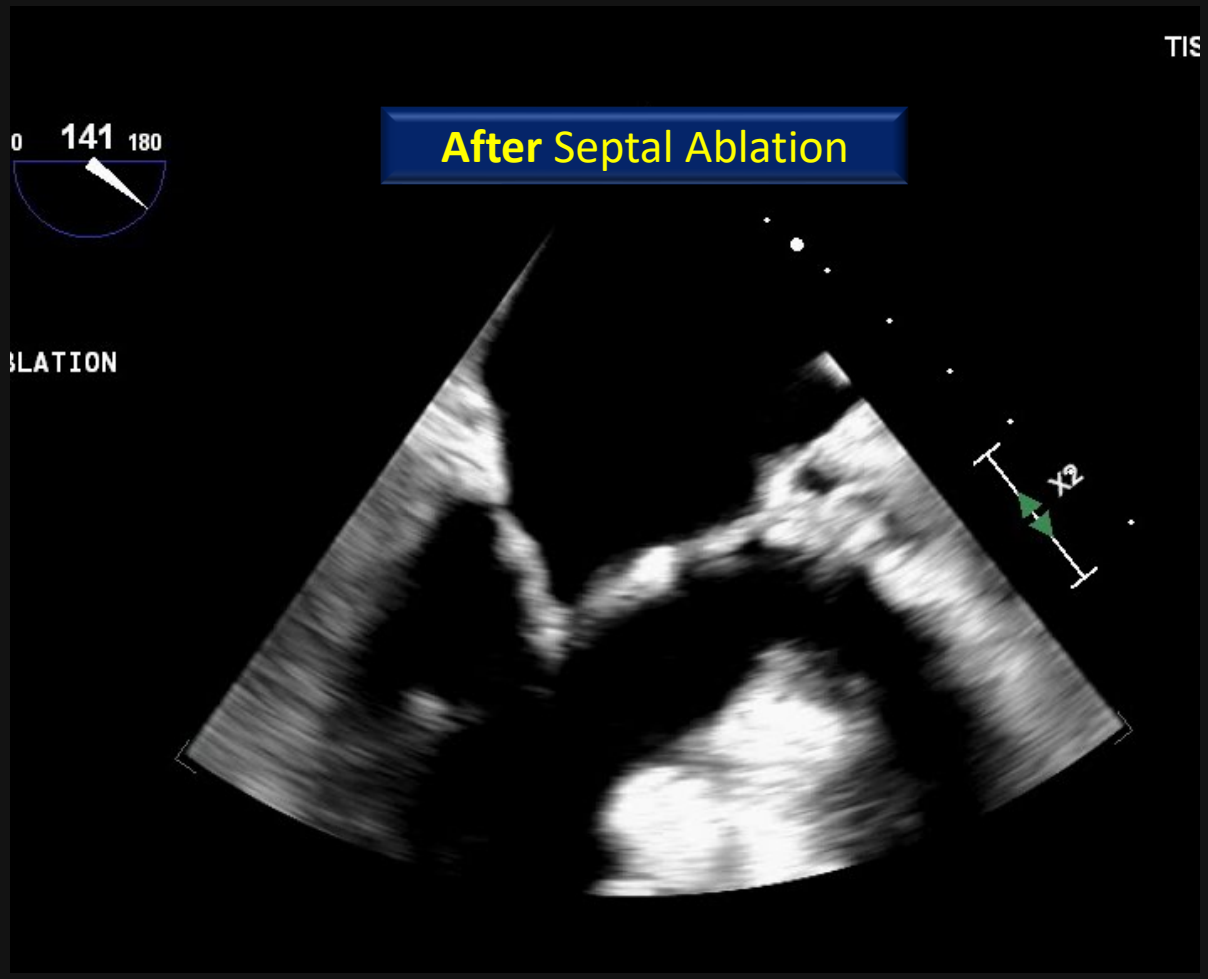
Post ablation



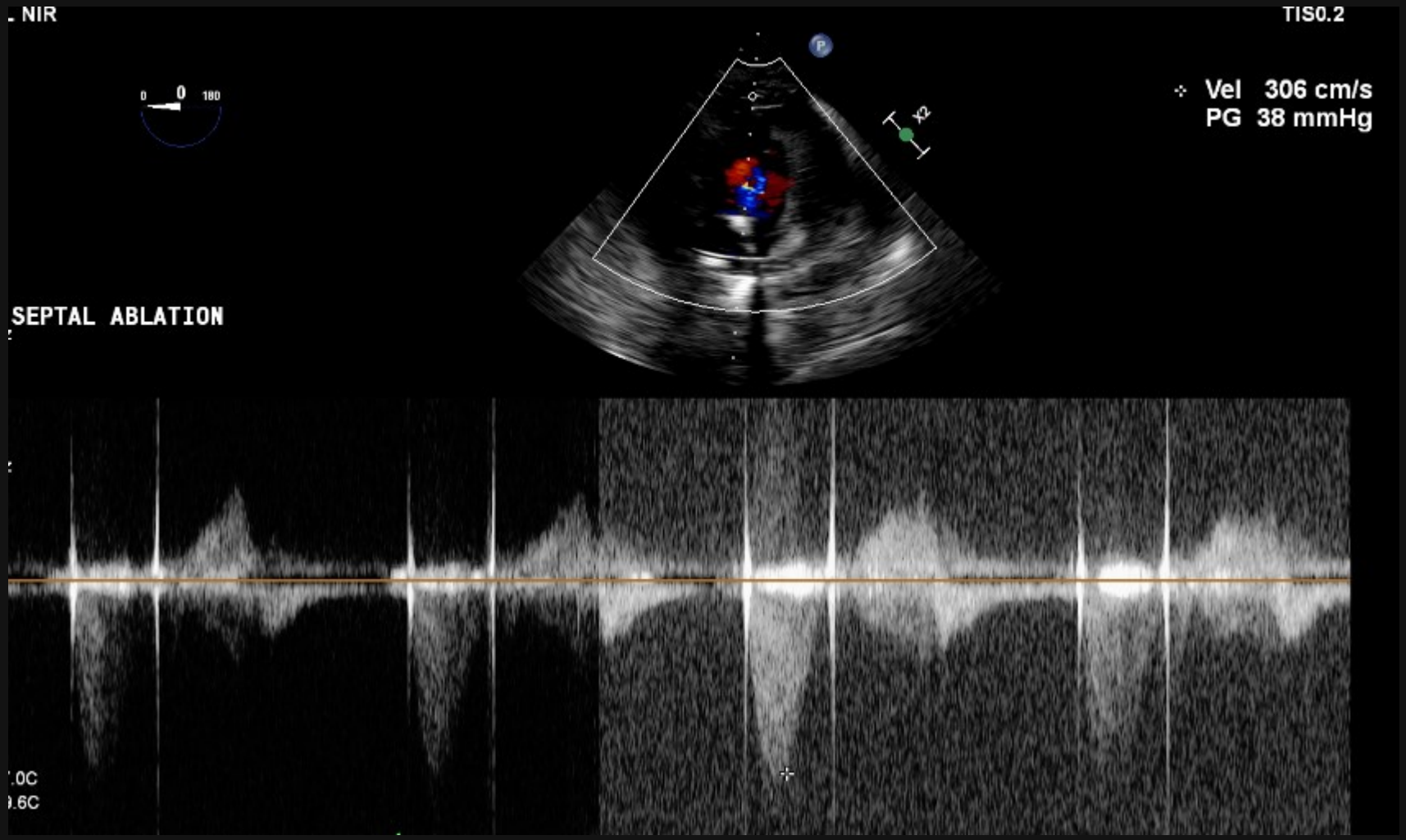


Pre vs. Post SAM





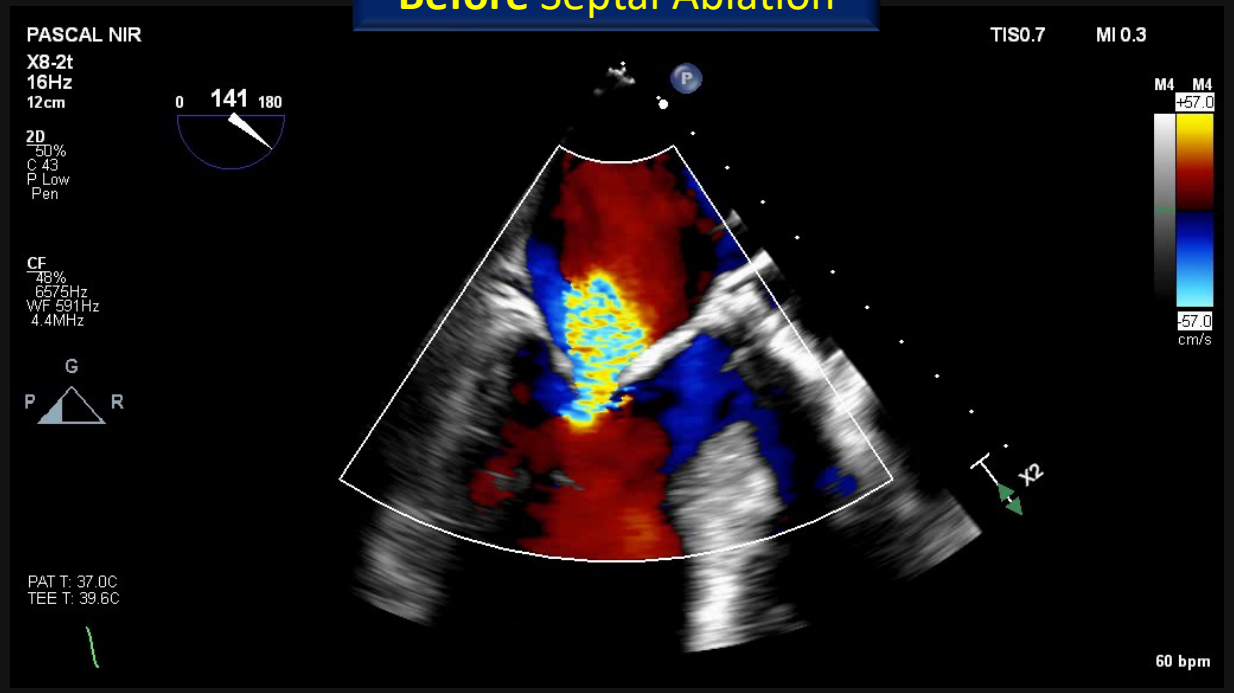
Post ablation LVOT gradients



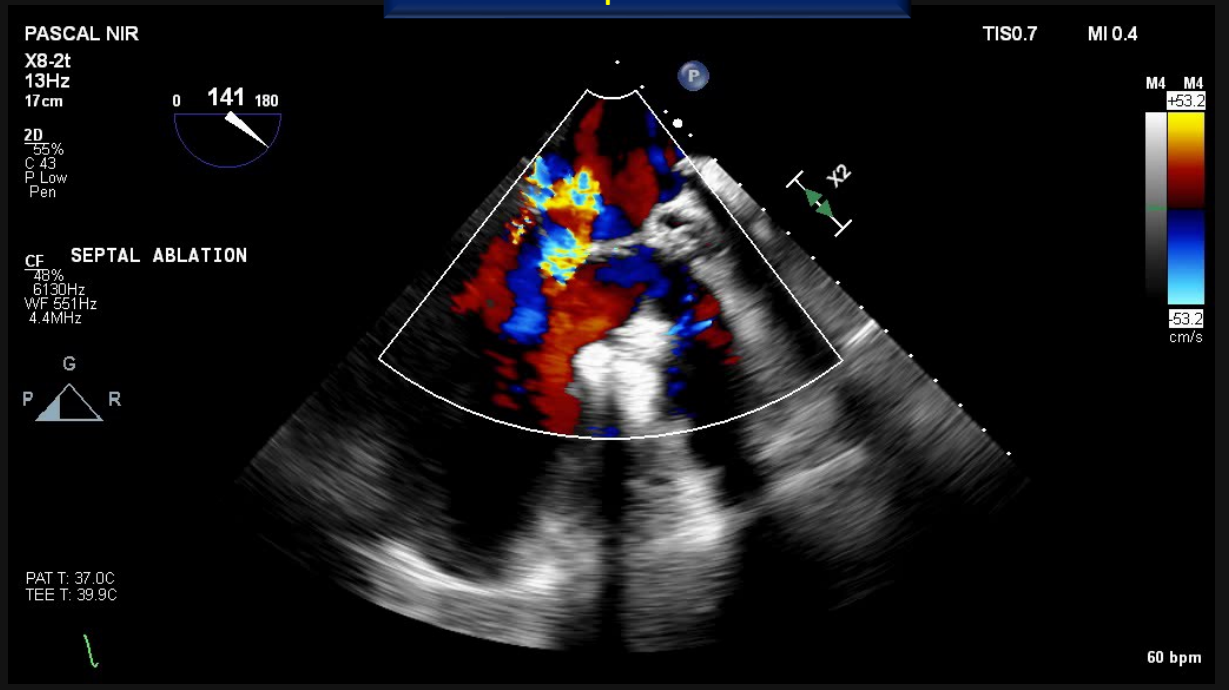
PEAK LVOT GRADIENT: **38mmHg**

Pre vs. post Color Doppler

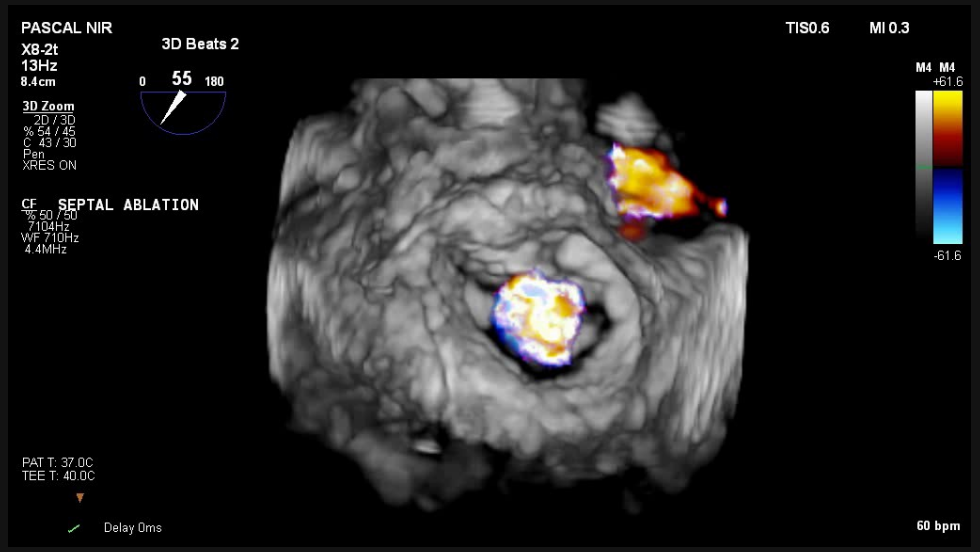
Before Septal Ablation

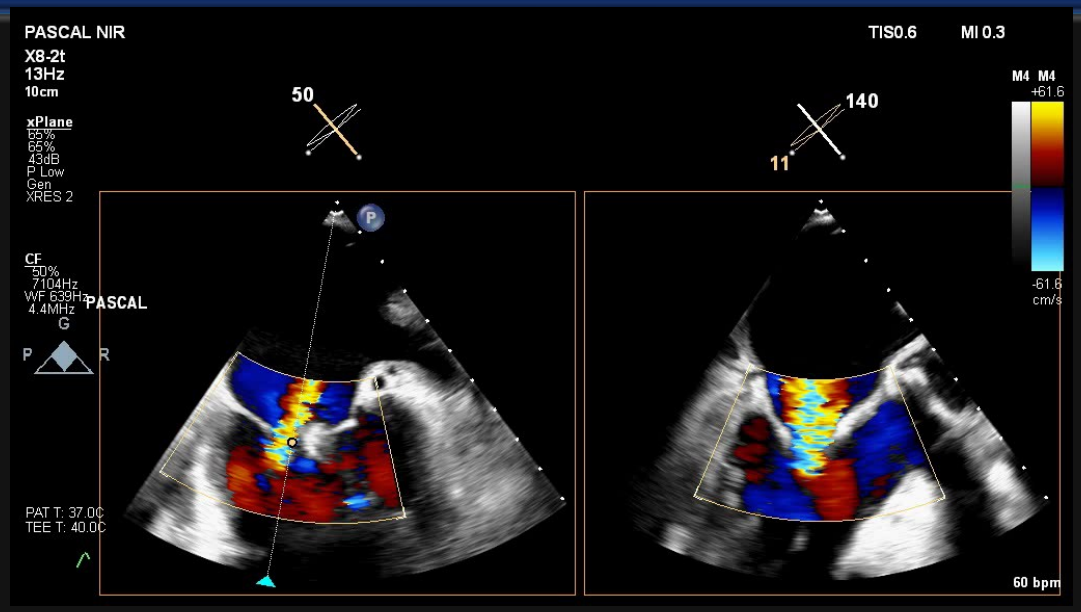


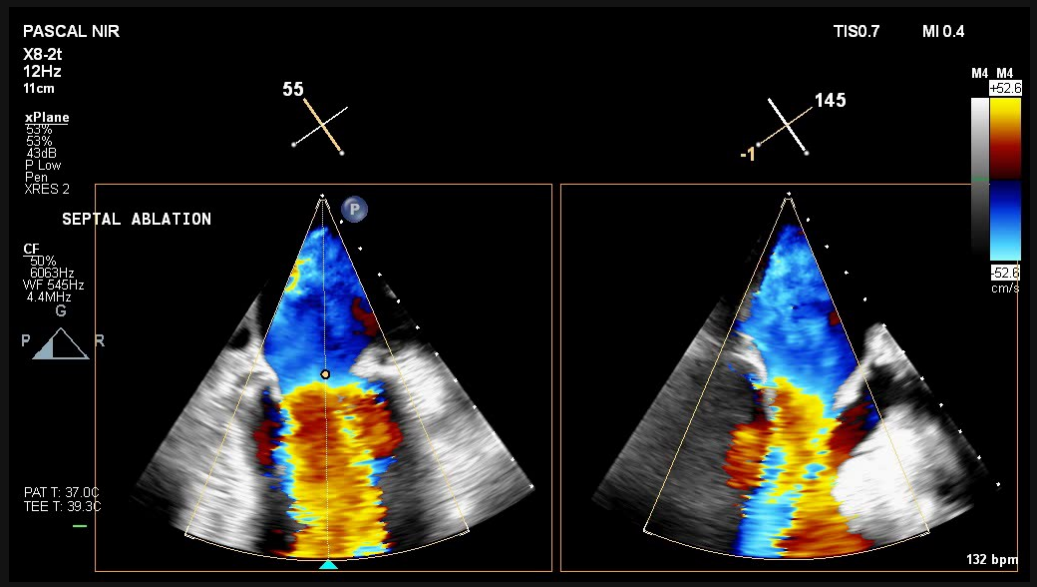
After Septal Ablation



Residual MR post septal ablation

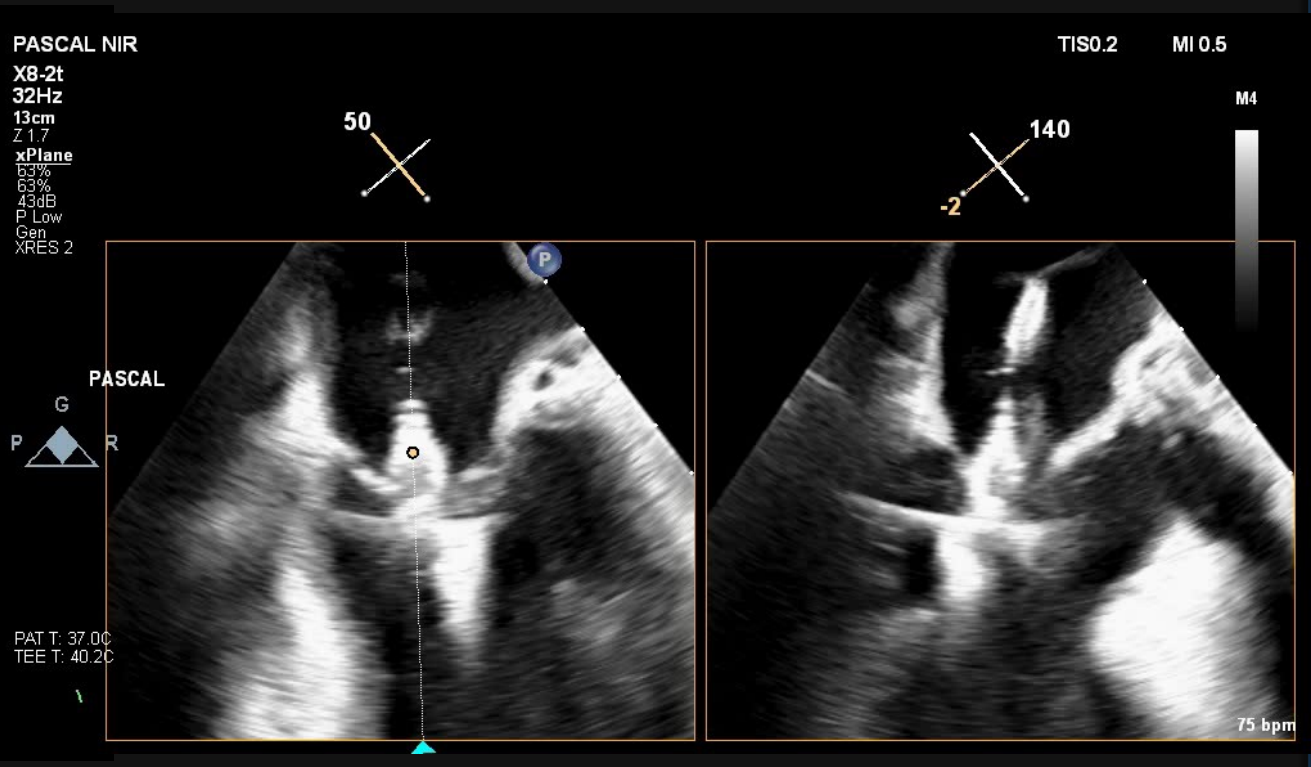




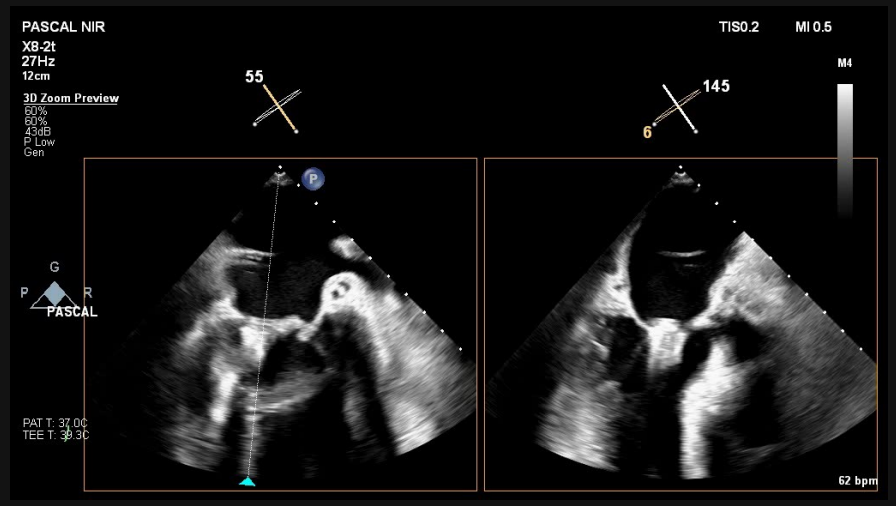


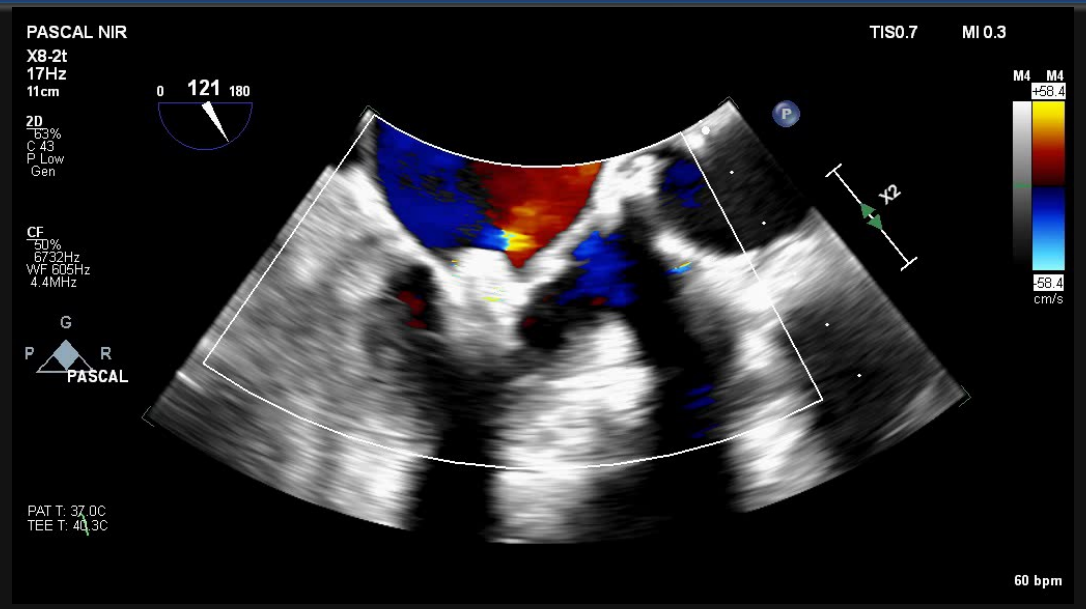
TEER (PASCAL)

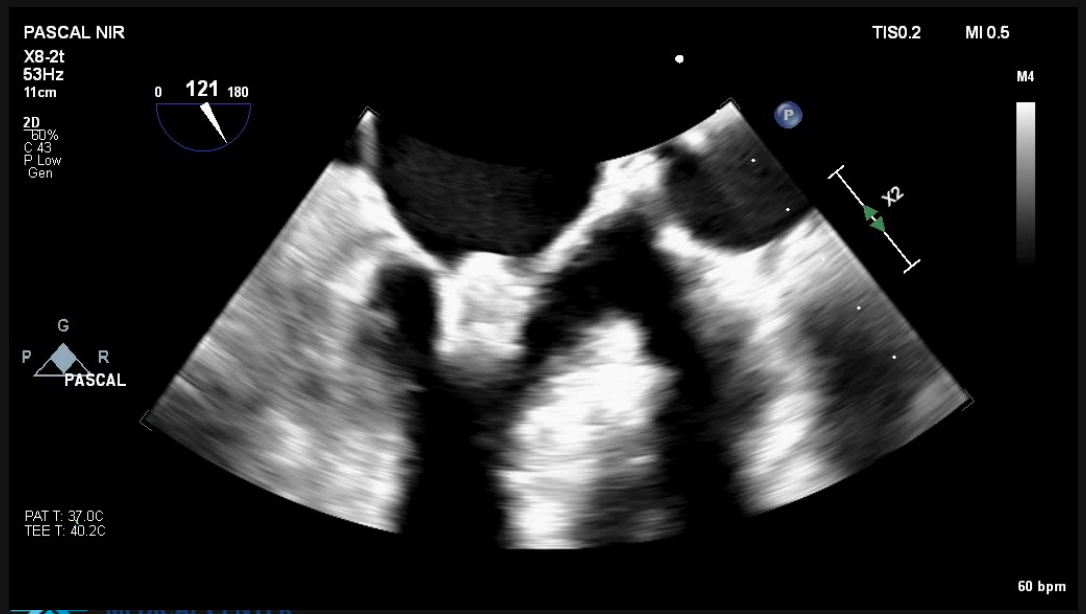

PASCAL NIR
X8-2t
10Hz
9.1cm
Live 3D
2D / 3D
% 55 / 45
C 43 / 30
Gen
XRES ON
3D Beats 1
0
75
180
TIS0.2
MI
PASCAL
PAT T: 37.0C
TEE T: 40.3C

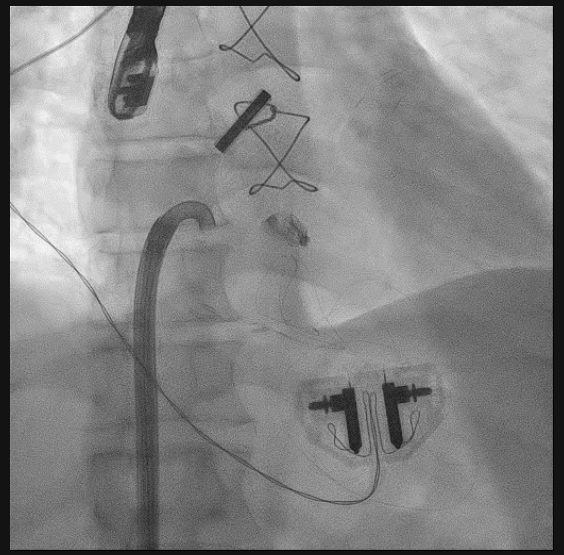

PASCAL NIR
X8-2t
32Hz
13cm
Z 1.7
xPlane
63%
63%
43dB
P Low
Gen
XRES 2
TIS0.2
MI 0.5
M4
50
140
-2
PASCAL
G
P
R
PAT T: 37.0C
TEE T: 40.2C
75 bpm

TEER (PASCAL)



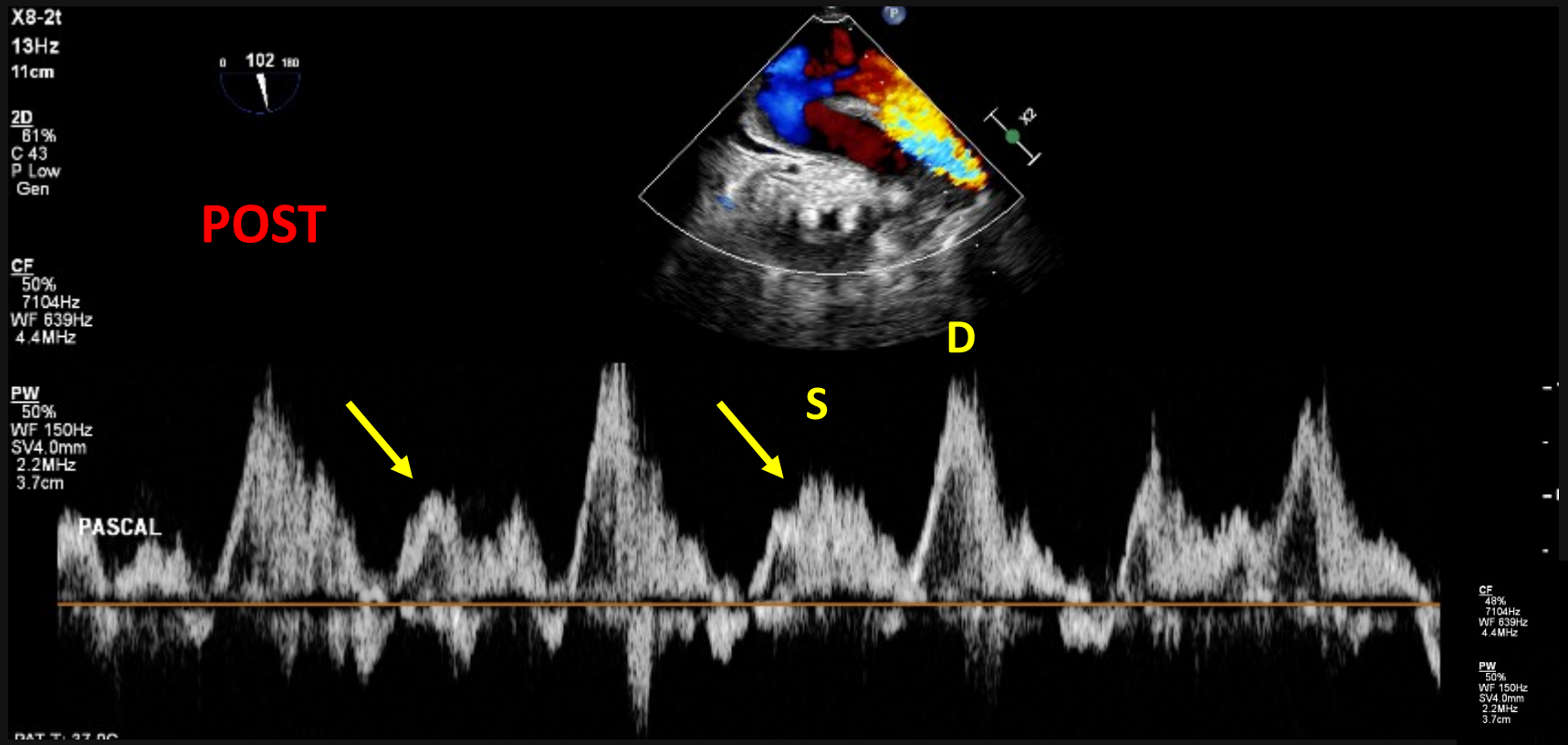


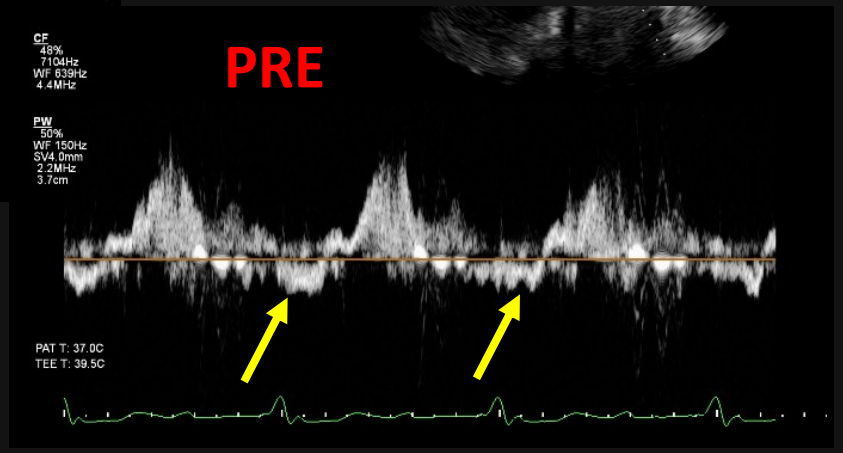




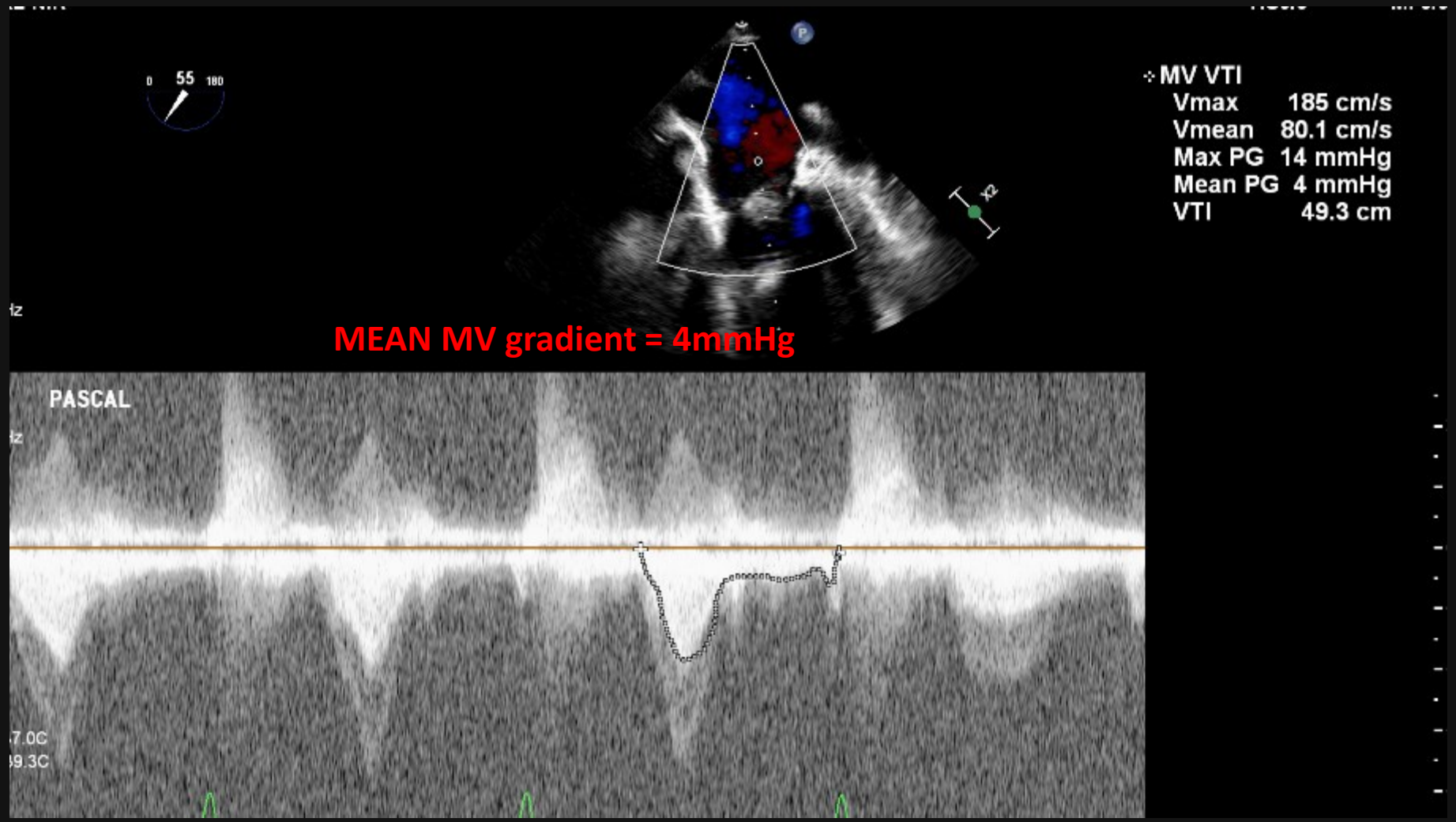
ICHILOV

Pulmonary Vein Flow





Post MV gradients

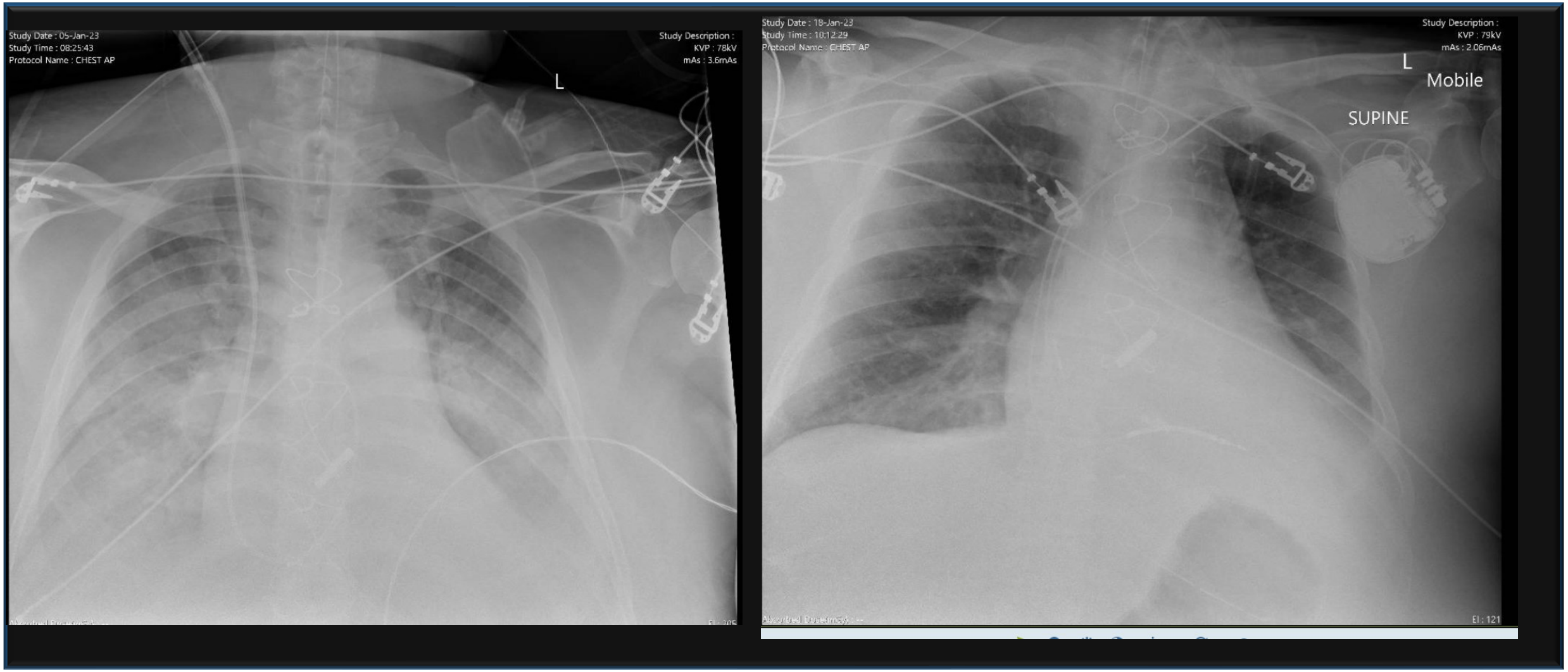


TEL AVIV SOURASKY MEDICAL CENTER ICHILOV

Post AVR + CABG

- Improvement in hemodynamic parameters.
- Weaned from ventilation after 3 days.

CXR – pre and post procedure



TEL AVIV SOURASKY MEDICAL CENTER ICHILOV

Post AVR + CABG

- Improvement in hemodynamic parameters.
- Weaned from ventilation after 3 days.

- Transferred to rehab **after 50 days in ICU**

HAPPY END

TEL AVIV SOURASKY
MEDICAL CENTER
ICHILOV

SUMMARY

- Coexistence of **Hypertrophic Cardiomyopathy** and **Bicuspid Aortic Valve**
- **SAM and LVOT obstruction** after **Aortic Valve Replacement**

SUMMARY

- Coexistence of **Hypertrophic Cardiomyopathy** and **Bicuspid Aortic Valve**
- **SAM and LVOT obstruction** after **Aortic Valve Replacement**
- **Transcatheter edge-to-edge repair (TEER)** for **SAM-related MR and LVOTO**
- **Combination of alcohol septal ablation and TEER**

SUMMARY

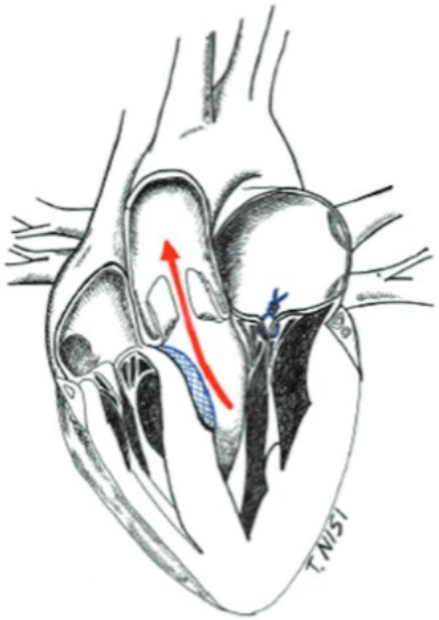
Surgical Mitral Valve edge-to-edge repair for SAM

REVIEW

JOURNAL OF CARDIAC SURGERY WILEY

Mitral regurgitation in hypertrophic obstructive cardiomyopathy: The role of the edge-to-edge technique

Elisabetta Lapenna MD | Ottavio Alfieri MD | Teodora Nisi MD | Michele De Bonis MD



Transcatheter Mitral Valve edge-to-edge repair for SAM

2015

Case Reports > EuroIntervention. 2015 Dec;11(8):942-7. doi: 10.4244/EIJY14M08_13.

Targeting systolic anterior motion and left ventricular outflow tract obstruction in hypertrophic obstructed cardiomyopathy with a MitraClip

Ulrich Schäfer [1], Christian Frerker, Thomas Thielsen, Dimitry Schewel, Ralf Bader, Karl-Heinz Kuck, Felix Kreidel

Affiliations + expand

PMID: 25169590 DOI: 10.4244/EIJY14M08_13

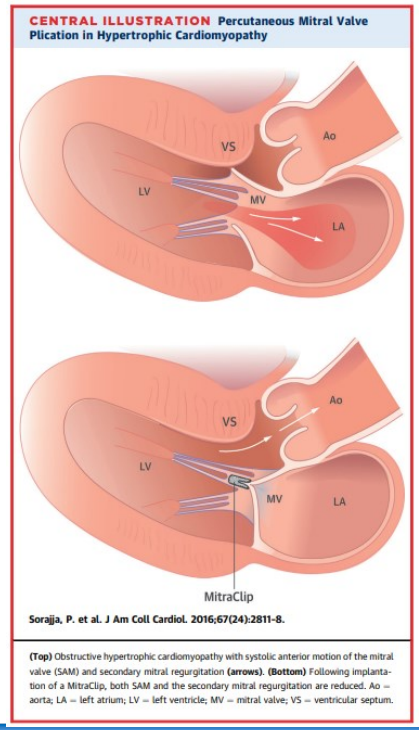
Free article

2016

ORIGINAL INVESTIGATIONS

First Experience With Percutaneous Mitral Valve Plication as Primary Therapy for Symptomatic Obstructive Hypertrophic Cardiomyopathy

Paul Sorajja, MD, Wesley A. Pedersen, MD, Richard Bae, MD, John R. Lesser, MD, Desmond Jay, MD, David Lin, MD, Kevin Harris, MD, Barry J. Maron, MD



SUMMARY

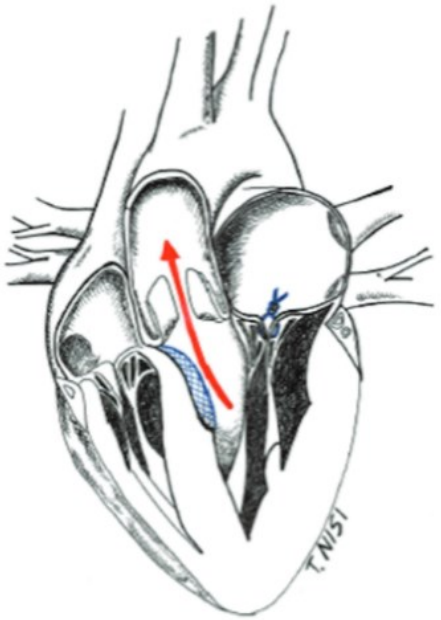
Surgical Mitral Valve edge-to-edge repair for SAM

REVIEW

JOURNAL OF CARDIAC SURGERY WILEY

Mitral regurgitation in hypertrophic obstructive cardiomyopathy: The role of the edge-to-edge technique

Elisabetta Lapenna MD | Ottavio Alfieri MD | Teodora Nisi MD | Michele De Bonis MD



Transcatheter Mitral Valve edge-to-edge repair for SAM

2015

Case Reports > EuroIntervention. 2015 Dec;11(8):942-7. doi: 10.4244/EIJY14M08_13.

Targeting systolic anterior motion and left ventricular outflow tract obstruction in hypertrophic obstructed cardiomyopathy with a MitraClip

Ulrich Sch
Felix Kreic

Affiliation

PMID: 25

Free artic

2016 ORIGINA

Use of MitraClip to Target Obstructive SAM in Severe Diffuse-Type Hypertrophic Cardiomyopathy: Case Report and Review of Literature

Killing two birds with one stone—MitraClip for flail P2 and systolic anterior motion of mitral

t

Tang Hak Chiaw, and Yeo Khung Keong*

09, Singapore

-of-print 11 December 2018

Percutaneous mitral valve edge-to-edge repair for late systolic anterior motion after surgical mitral valve repair: a case report

Kenichi Ishizu *, Akihiro Isotani , Shinichi Shirai, and Kenji Ando

Department of Cardiology, Kokura Memorial Hospital, 3-2-1 Asano, Kokurakita-ku, Kitakyushu, Fukuoka 802-8555, Japan

Received 15 February 2021; first decision 12 March 2021; accepted 14 May 2021

Sorajja, P. et al. J Am Coll Cardiol. 2016;67(24):2811-8.

(Top) Obstructive hypertrophic cardiomyopathy with systolic anterior motion of the mitral valve (SAM) and secondary mitral regurgitation (arrows). (Bottom) Following implantation of a MitraClip, both SAM and the secondary mitral regurgitation are reduced. Ao – aorta; LA – left atrium; LV – left ventricle; MV – mitral valve; VS – ventricular septum.

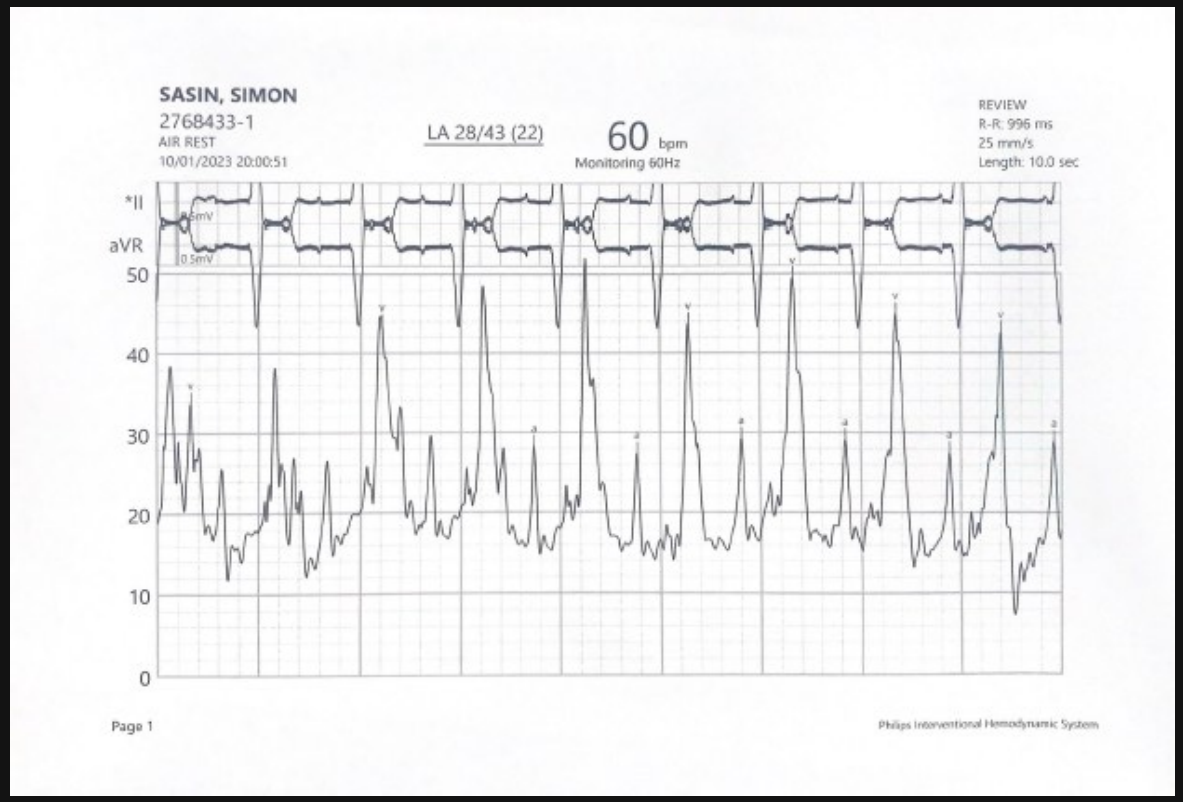
TEL A
MEDI
ICHIL

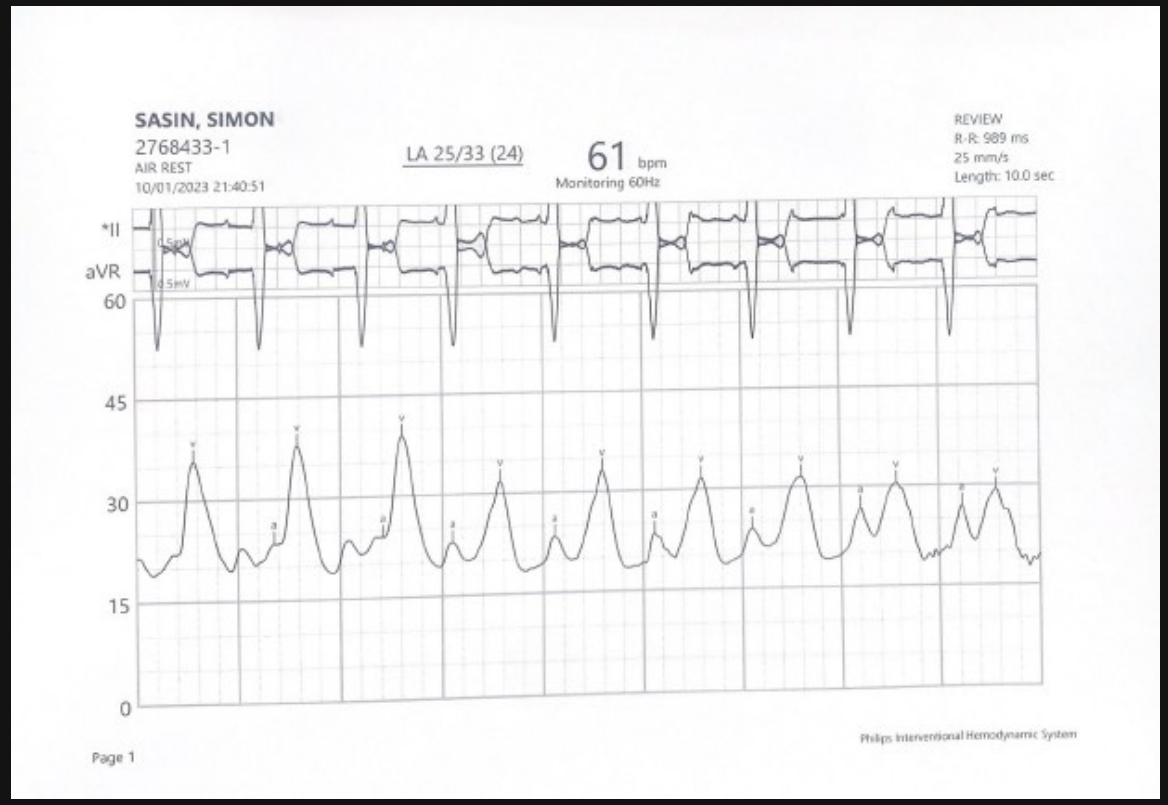
DISCUSSION?

THANK YOU

Nirf@tlvmc.gov.il

Hemodynamics





- Normal LV size and global systolic function(EF~60%).
- Mild LV hypertrophy.
- Grade 2 diastolic dysfunction (pseudonormal LV filling pattern) suggestive of elevated LA pressure.
- Mild LA dilatation.
- Normal RV size
- Mild to modera y to high forward flow). not rule out aortic valve veg
- Mitral annulus calcification, Calcified anterior mitral leaflet, Mild+ mitral valve regurgitation.
- Slightly elevated pulmonary artery pressure.
- Small to moderate pericardial effusion.

Consider TEE to assess for the presence of vegetations.

Date: 01/07/2021

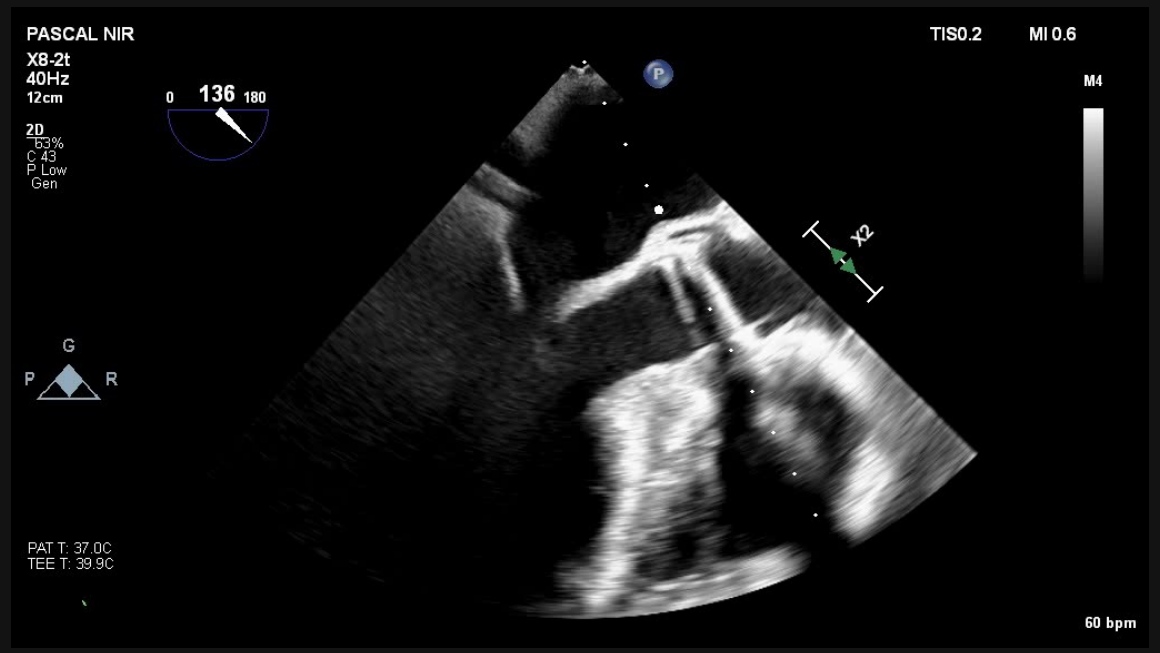
Sonographer: מרגריטה צייטלין

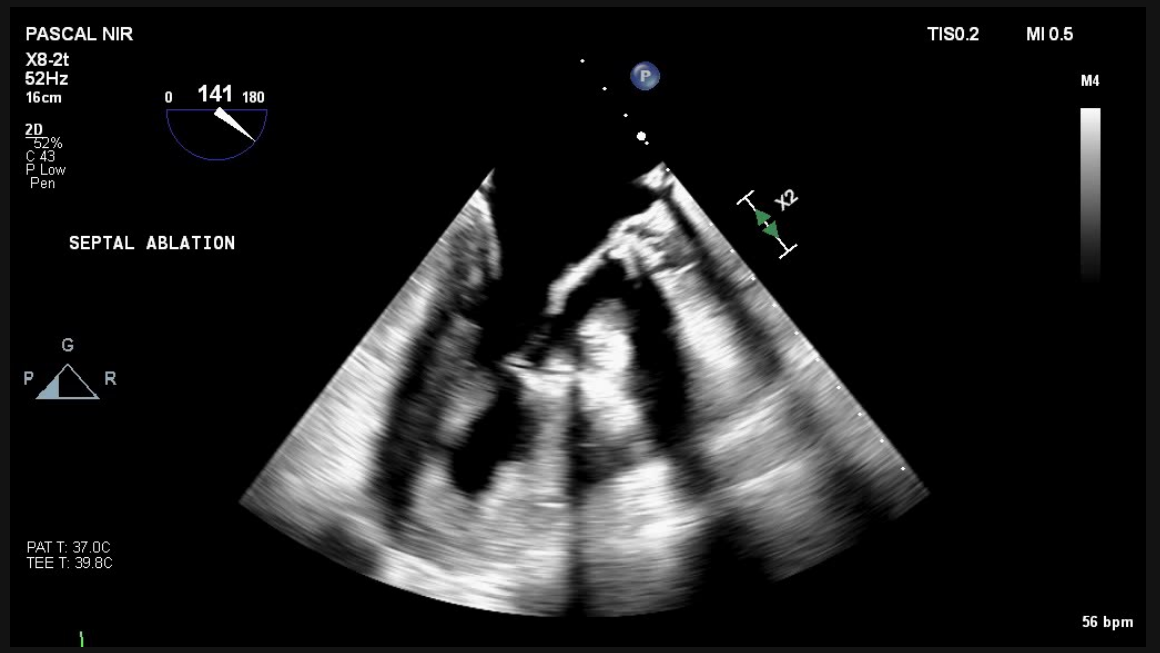
Electronically signed by: ניר פלינט דר', 86616 .מ.ר

- Consider TEE to assess for the presence of vegetations.

TEL AVIV SOURASKY MEDICAL CENTER ICHILOV

comparison


PASCAL NIR
X8-2t
40Hz
12cm
2D
63%
C 43
P Low
Gen
0 136 180
TIS0.2
MI 0.6
M4
X2
G
P
R
PAT T: 37.0C
TEE T: 39.9C
60 bpm


PASCAL NIR
X8-2t
52Hz
16cm
2D
52%
C 43
P Low
Pen
0 141 180
TIS0.2
MI 0.5
M4
SEPTAL ABLATION
X2
G
P
R
PAT T: 37.0C
TEE T: 39.8C
56 bpm