Is it a Zebra or a Horse? Differential Diagnosis in Echocardiography; A case Based Approach

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Objectives

- Explain the importance of multimodality imaging in differential diagnosis.
- Discuss the role of patient history and clinical intake in echocardiographic interpretation.
- Describe how off-axis and unconventional imaging approaches support accurate assessment.

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2025 SDMS Annual Conference

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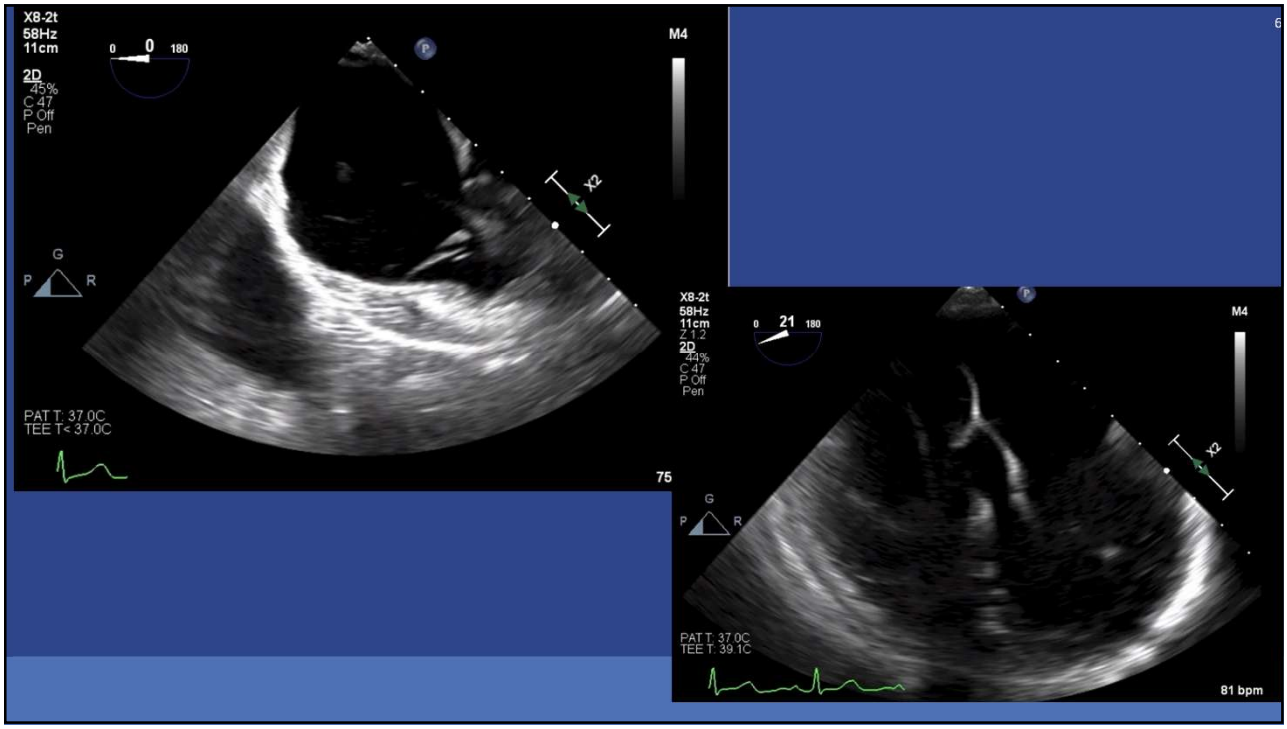

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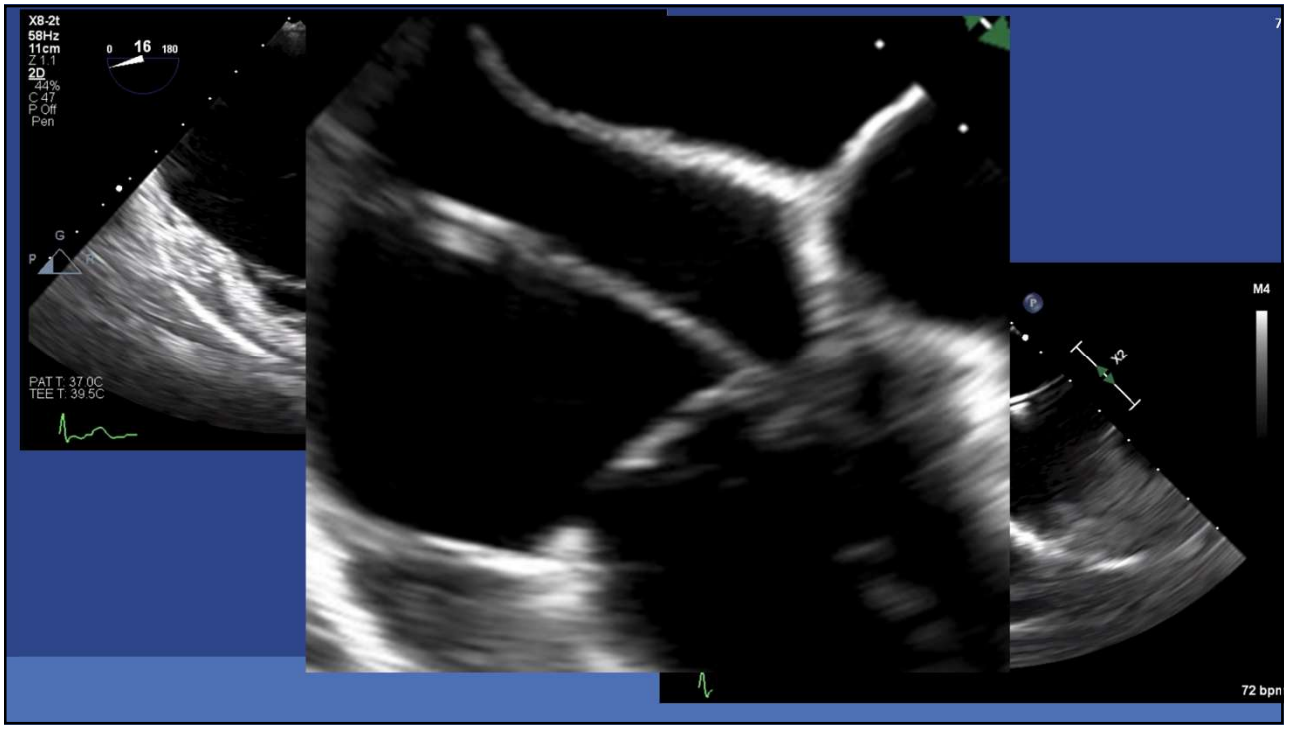

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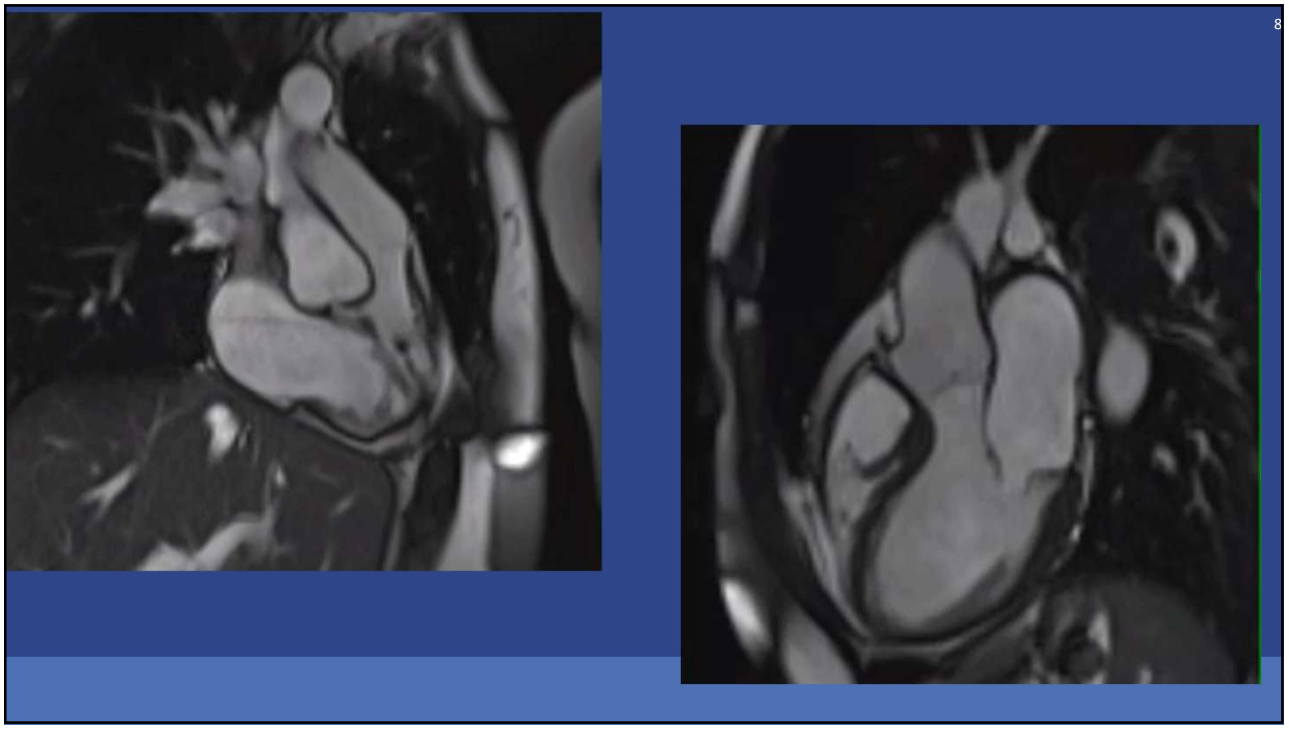

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Presentation and medical history;

- 70 YO woman presents with chest pain
- PMH of;
  - CAD (MI 2005, CABG 1999)
  - AFIB, HTN, chronic kidney disease, PVD, COPD
  - Prostate and bladder cancer
  - BP- 107/64, SPO2- 97% w/ 2L 02
  - Troponins= 1.73 (peak 1.77), Creatinine 1.3

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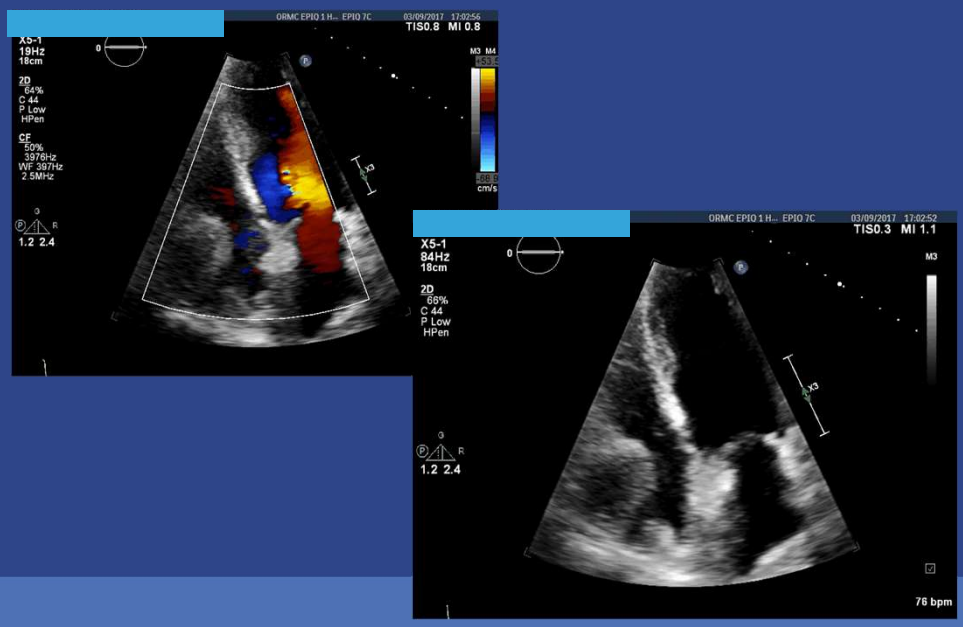

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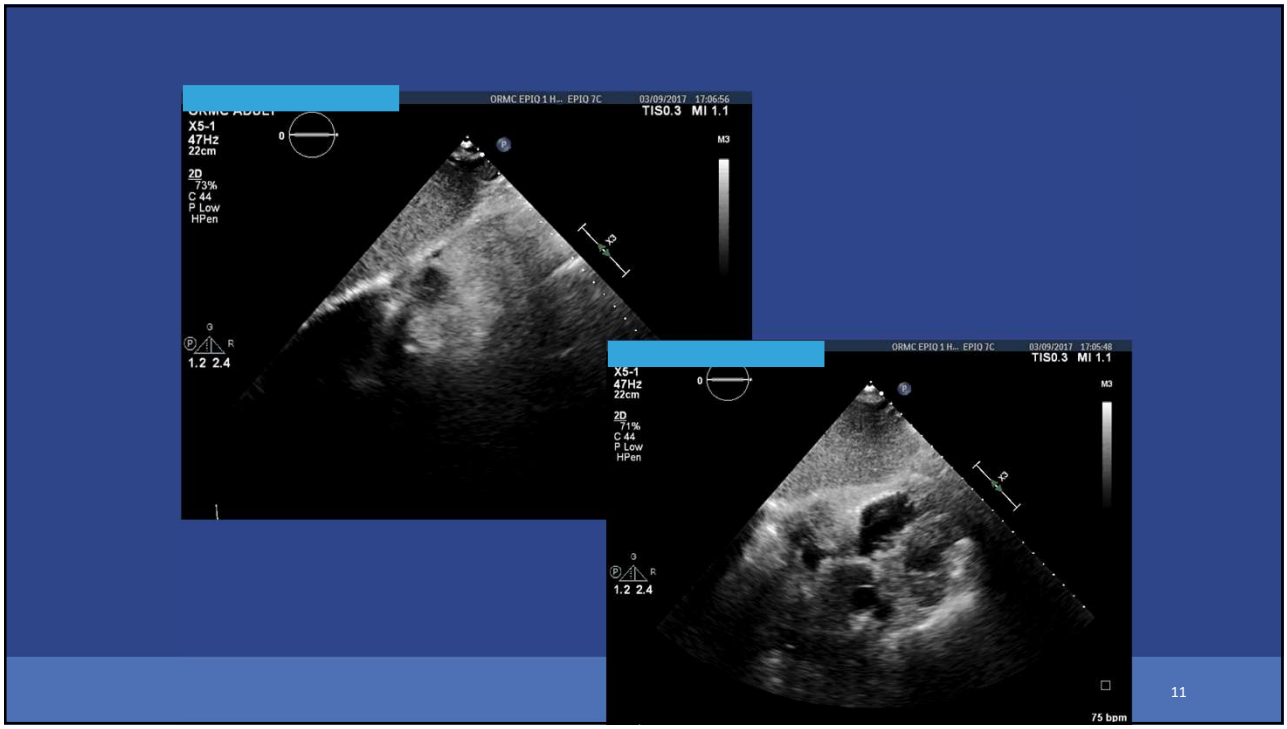

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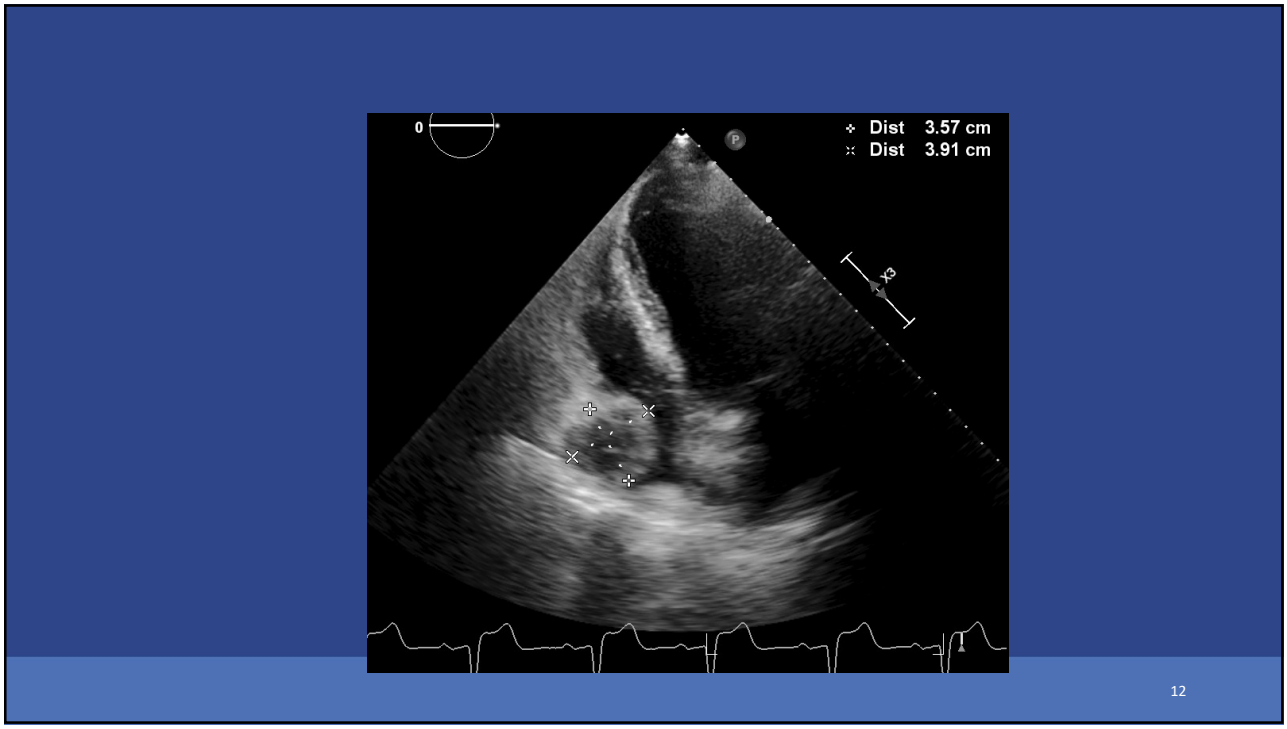

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Echo Report

- EF 35-40%
- Mild to moderate AI
- The right atrium is abnormally small with question of a large extra cardiac mass

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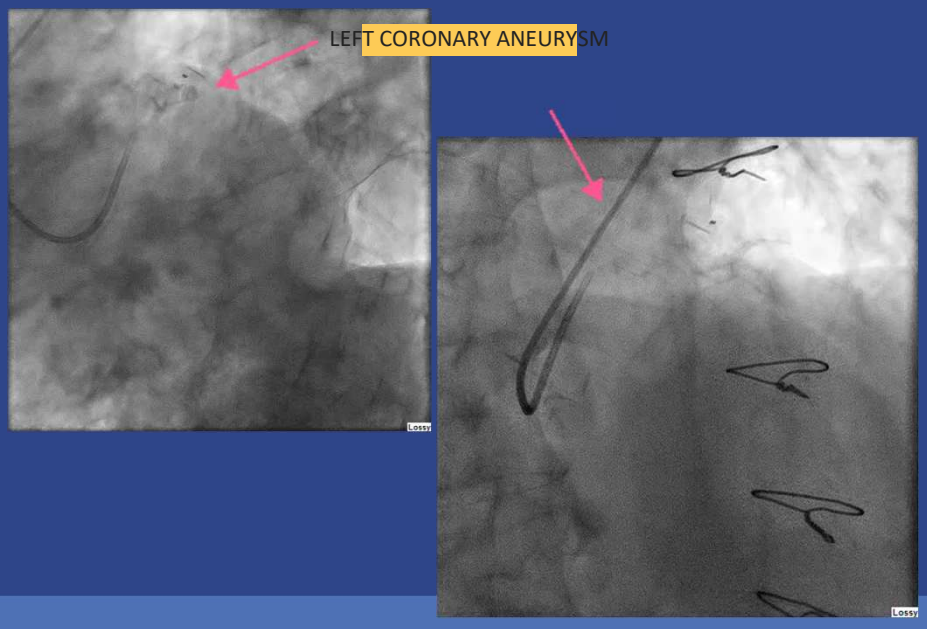

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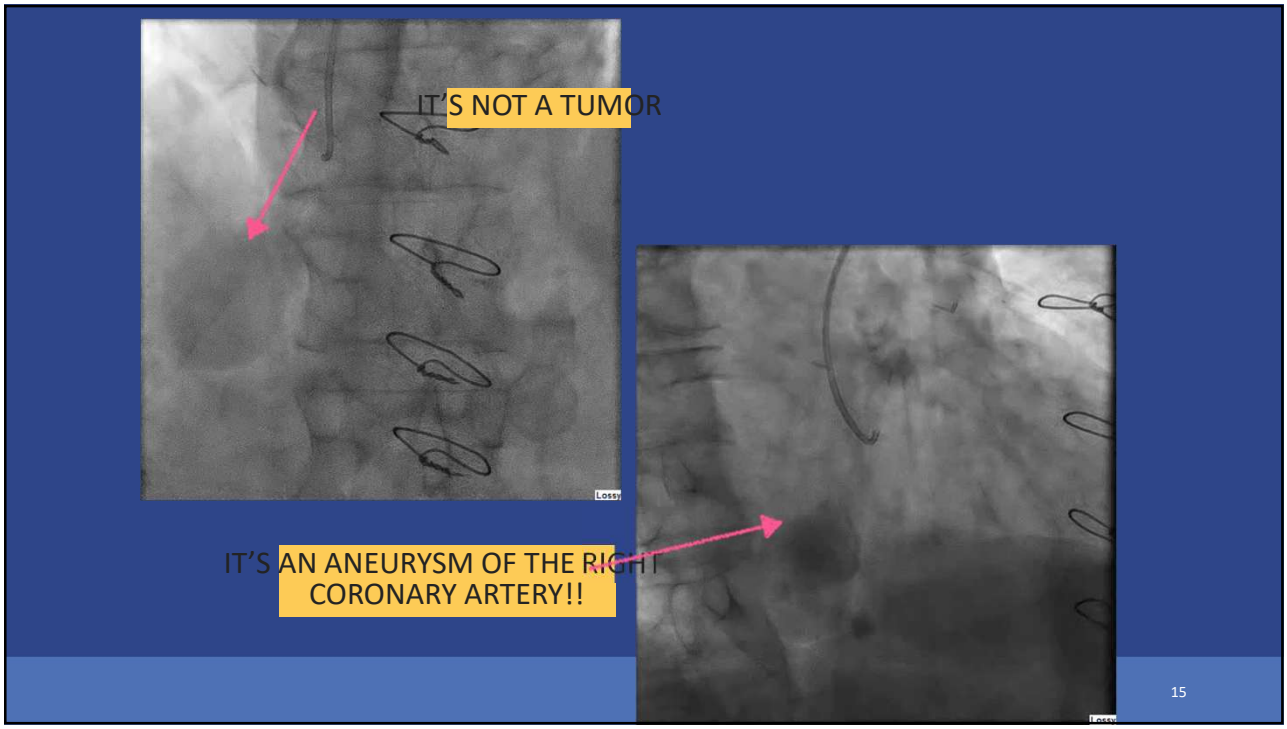

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Cath report

- Large right coronary artery aneurysm
- Patient considered a poor surgical candidate
- Attempt to close coronary aneurysm percutaneously using coils.

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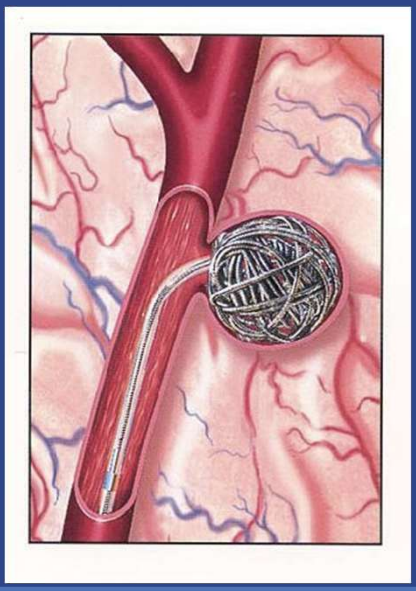
Coils

- Used to treat coronary artery and cerebral artery fistulas
- Catheter is positioned to site of the aneurysm
- Small metal “coils” are pushed out of the catheter and into the aneurysm effectively sealing it off



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Chief Complaint:
possible atrial mass.

History of Present Illness:
Pt is a 61yo female with past medical history of heart murmur, HTN, and allergic rhinitis who came to ORMC as a direct admit from home for evaluation of her possible atrial mass. She was at the cardiology (Dr. Waldman) office yesterday to have an ECHO done to rule out CHF because of her recent CXR showing possible CHF. Her ECHO showed possible atrial mass and Dr. Waldman wanted her to be admitted for further evaluation. She also states that she has been having worsening dyspnea in the last 3 weeks. Denies orthopnea, PND, chest pain, palpitations, weakness, dizziness, syncope or near syncope. She c/o mild nasal drainage and non-productive coughing. However, she denies fevers and chills.

PMH: as in HPI.
PSH: Hysterectomy, lap band, removal of breasts fibroids.
FH: diabetes mellitus and fibromyalgia (mother).
ALL: PCN (nausea, white skin bumps). Pine pollen (sinusitis).
SH: Single, works as a chief financial officer at Laser Eye Institute. She smoked when she was very young. Drinks alcohol socially. Denies any use of illicit drugs.

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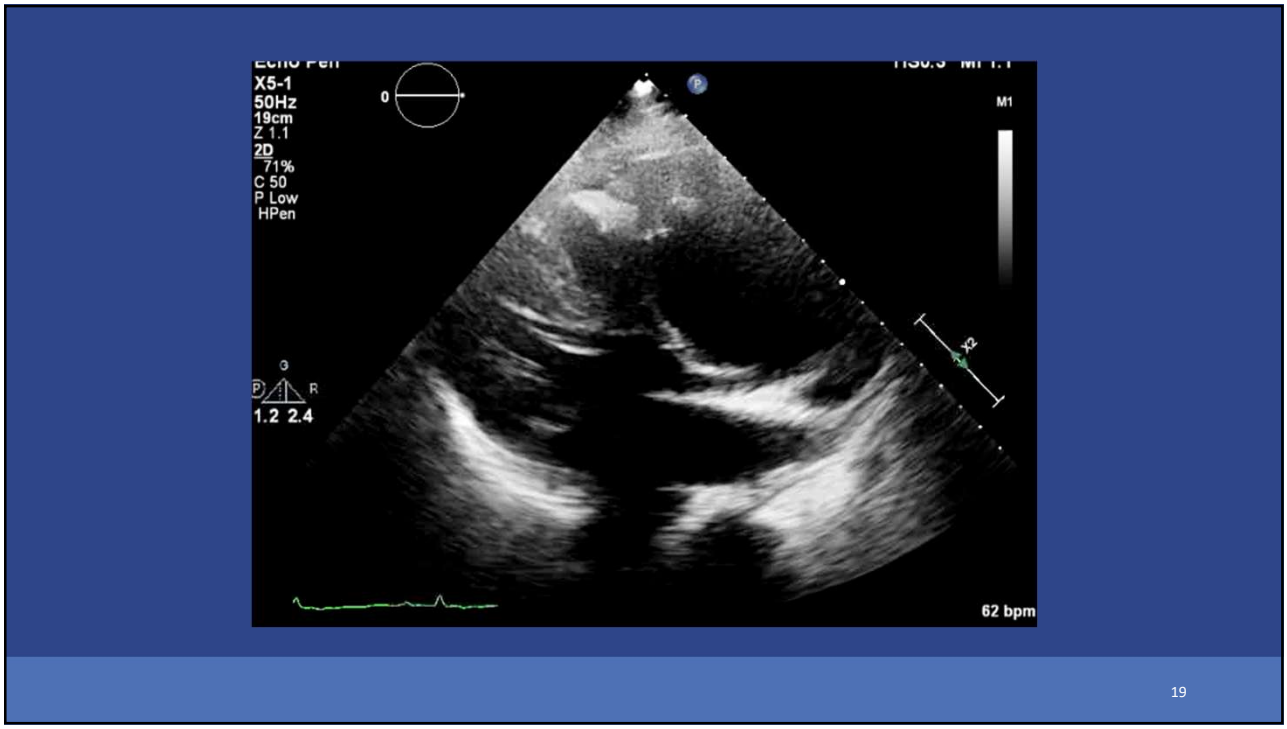

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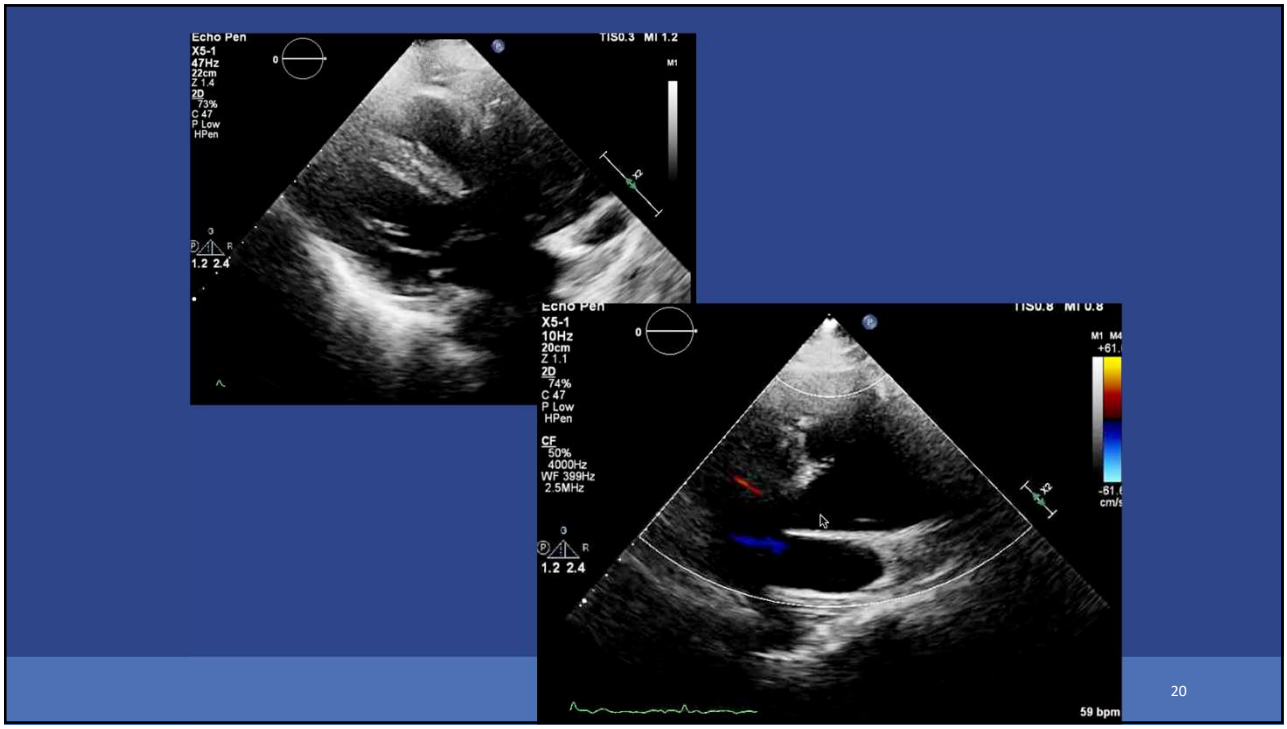

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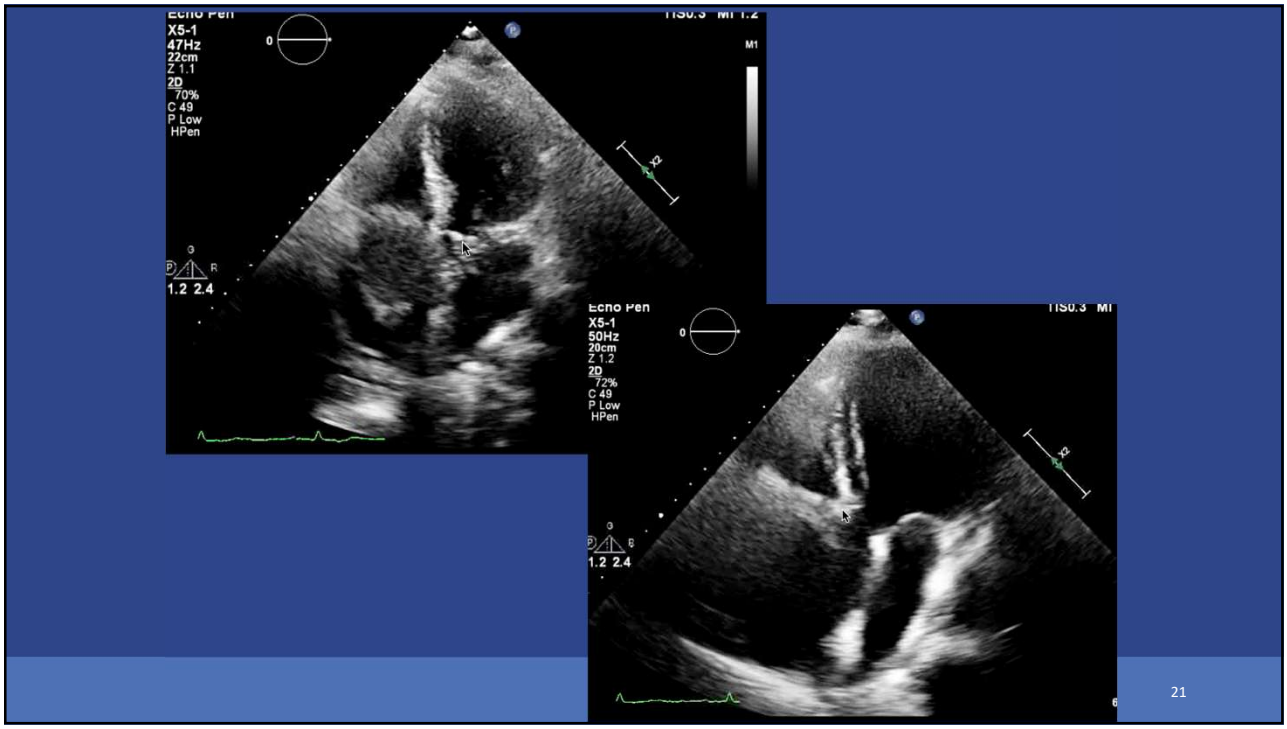

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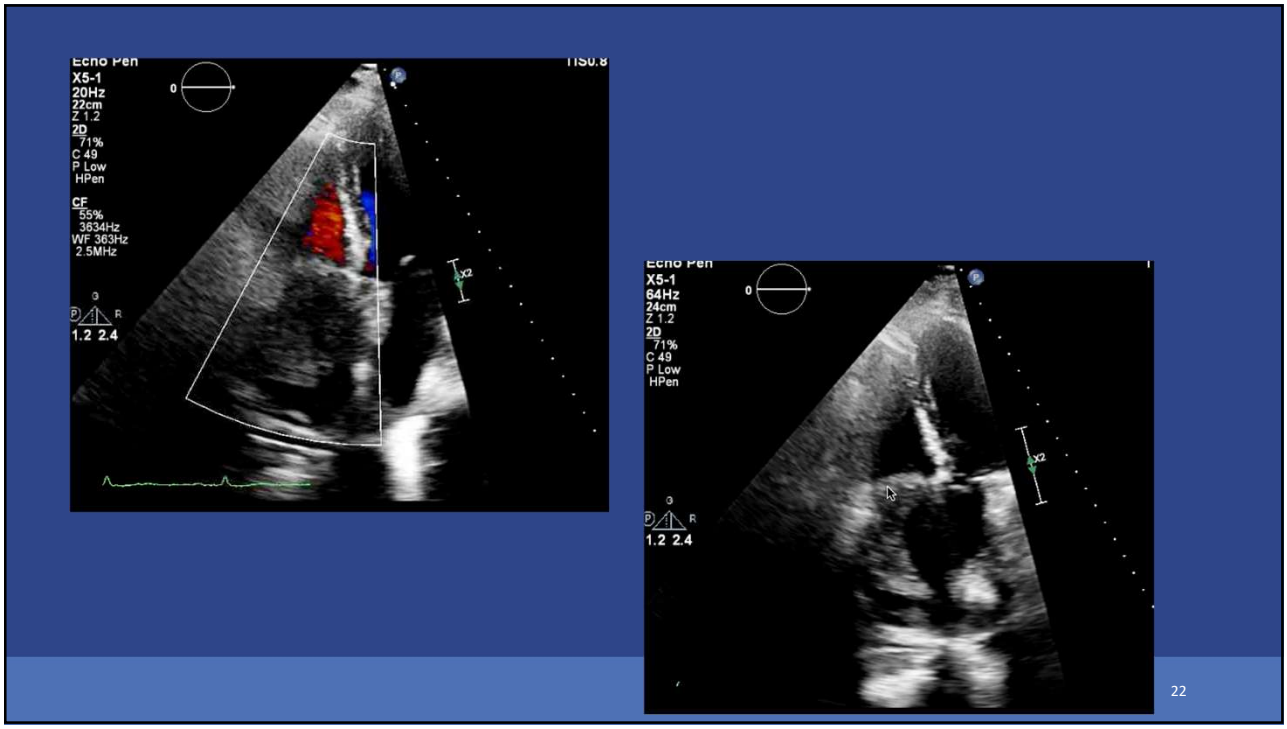

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Echo 1 results

- A large right atrial mass of unknown origin
- Missing views to best quantify location of mass attachment
- TV mean gradients = 7mmhg
- Sent to ORMC for surgical consult and 3D imaging before further testing

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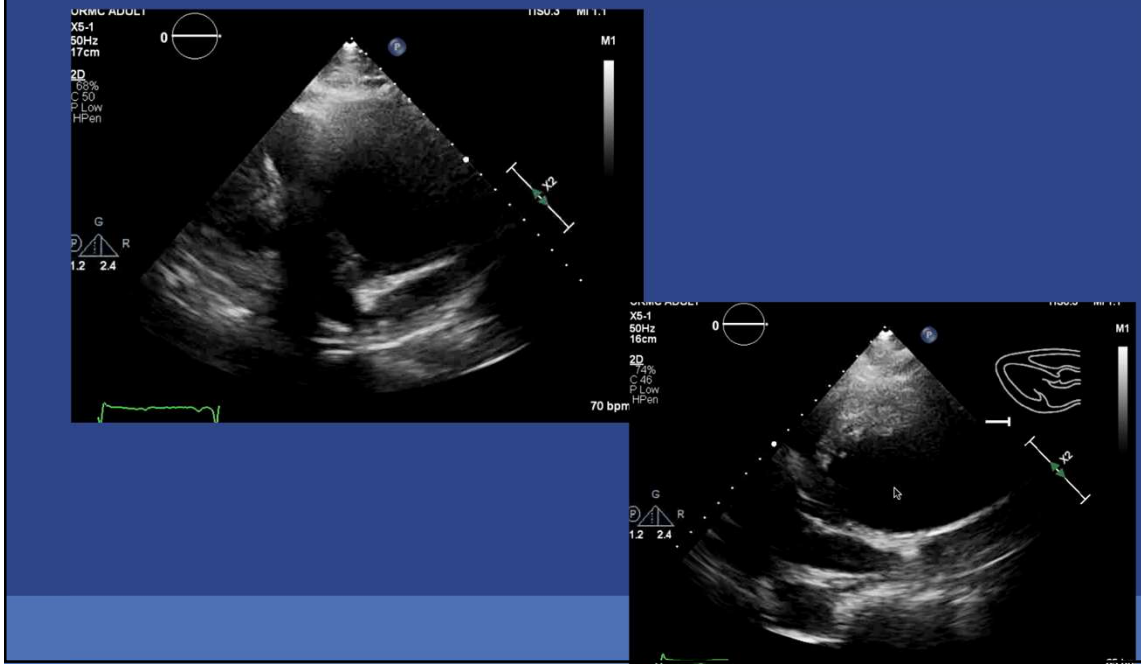

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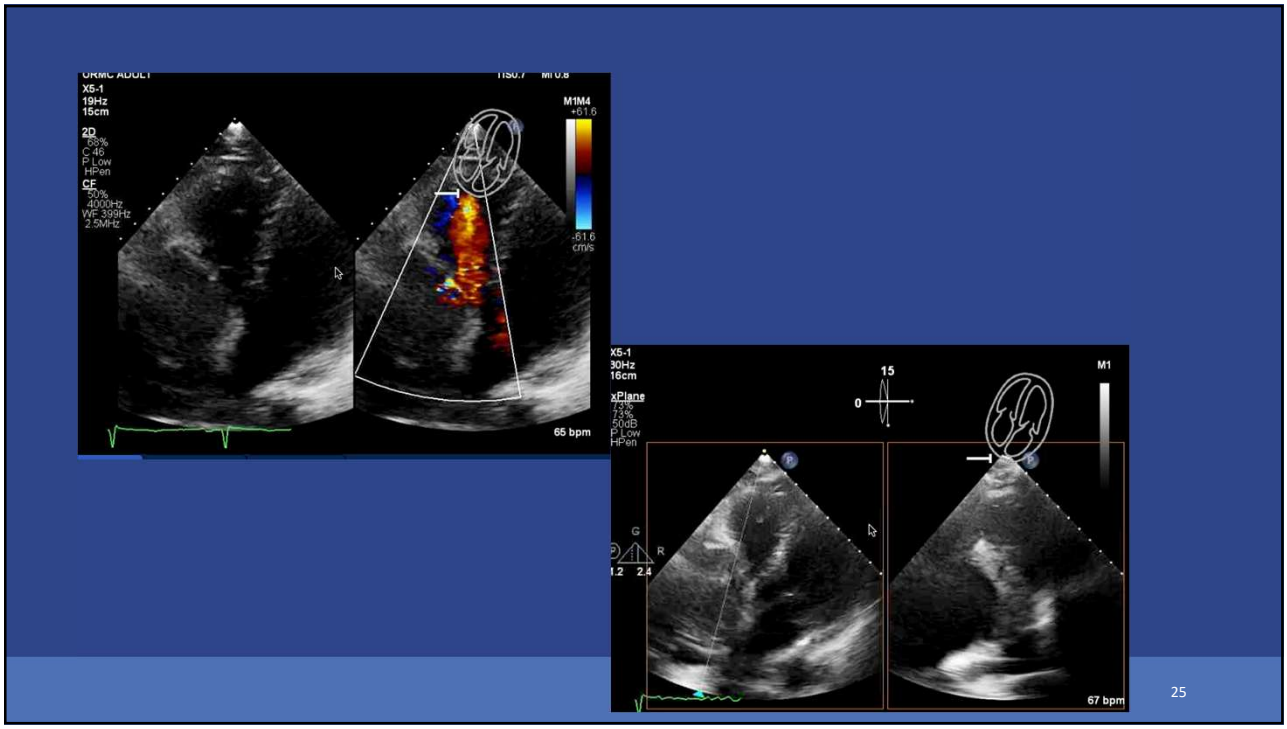

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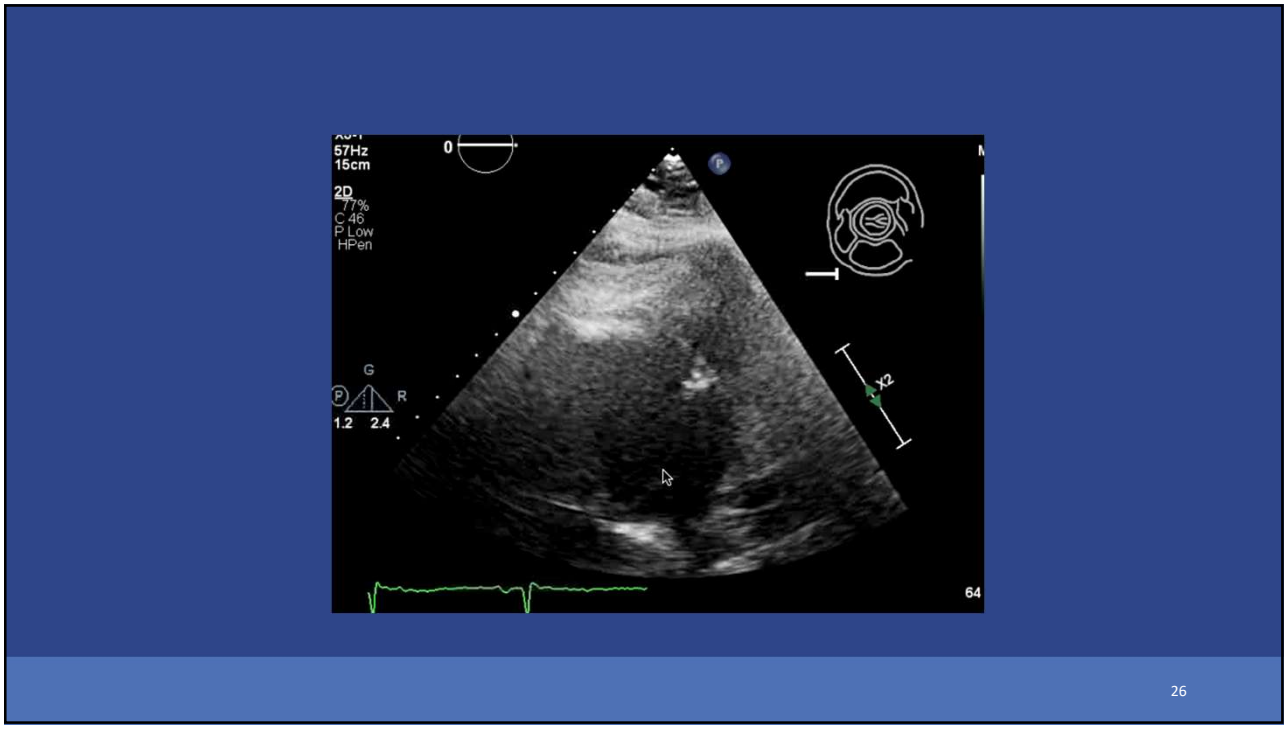

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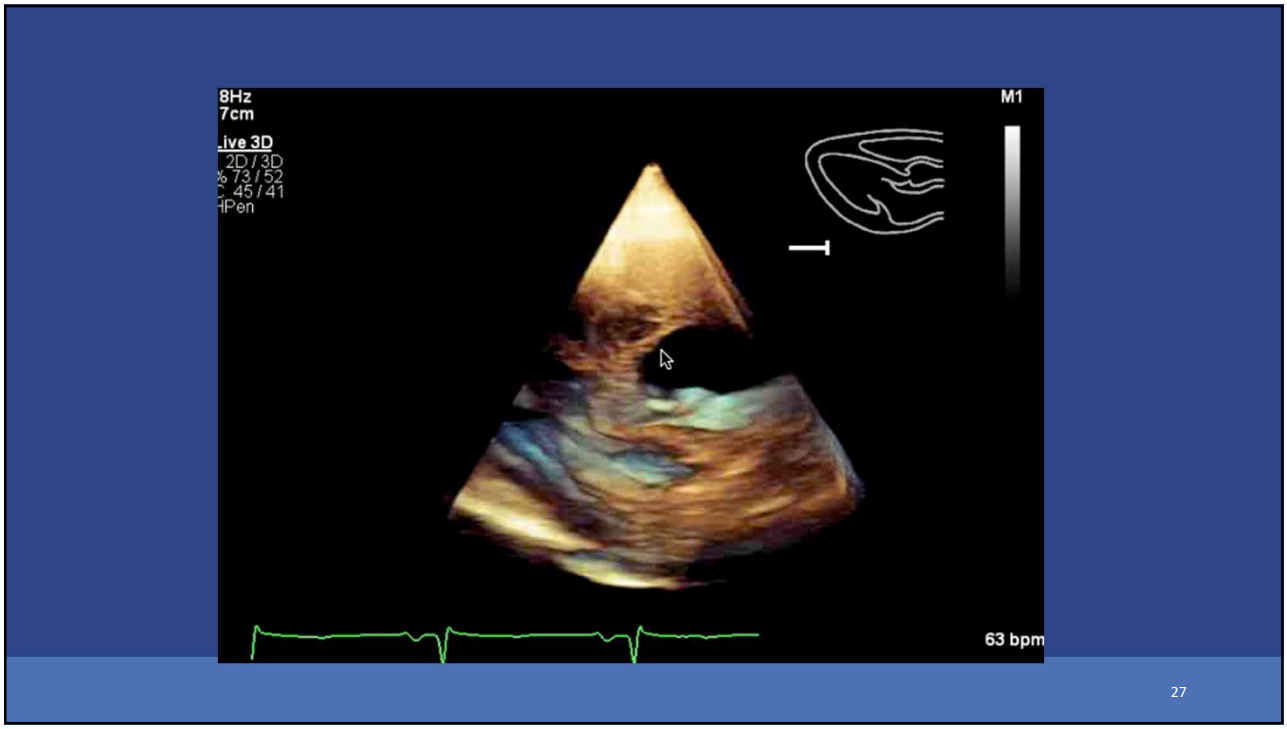

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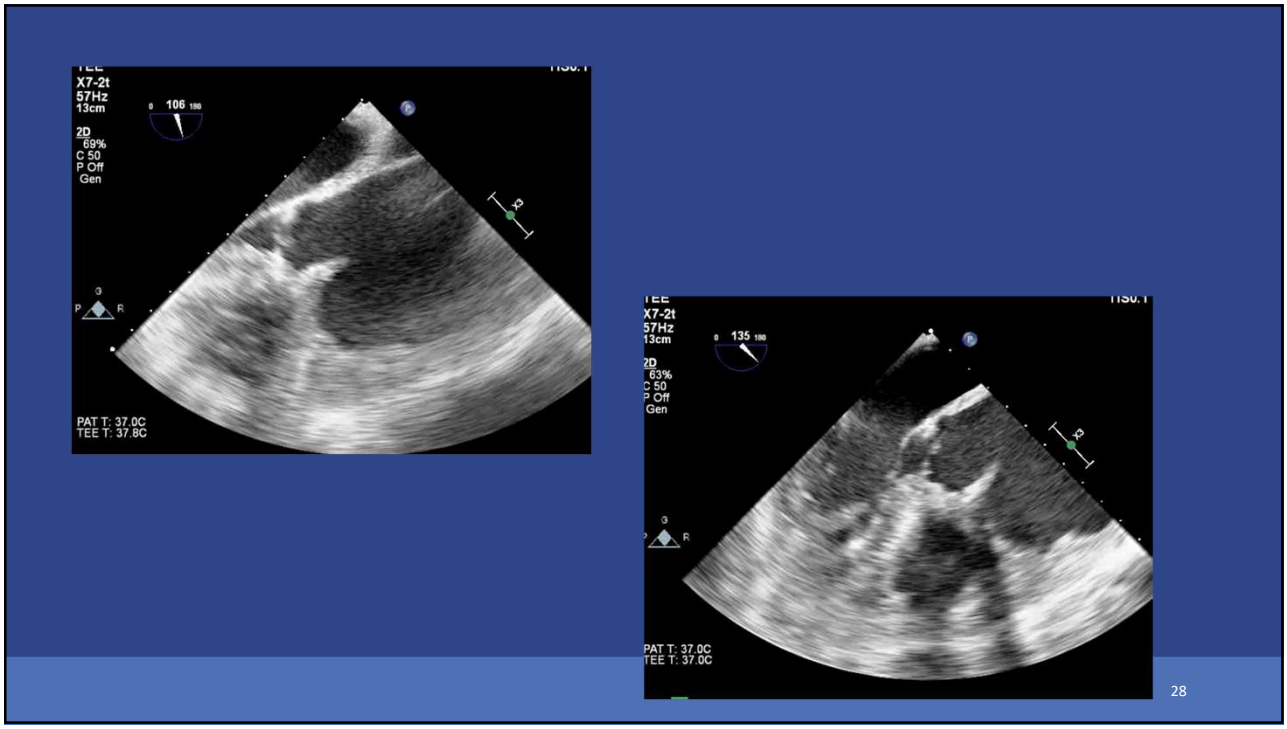

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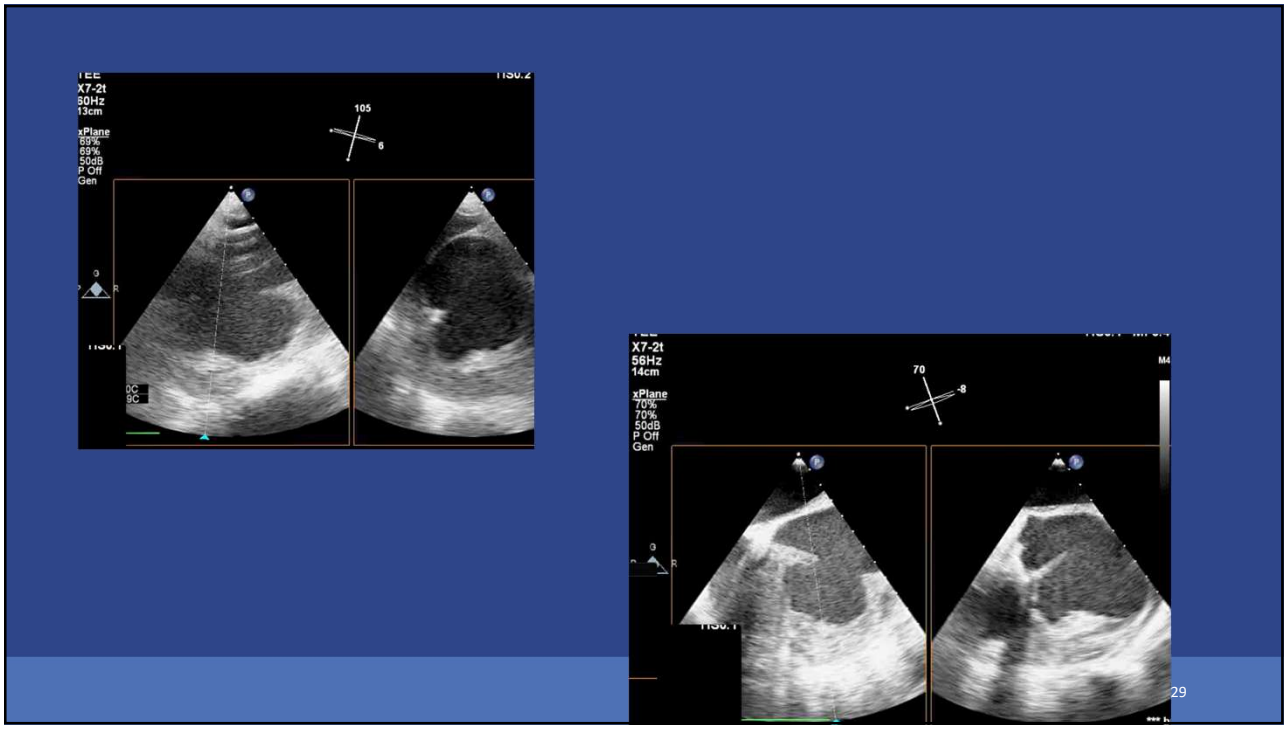

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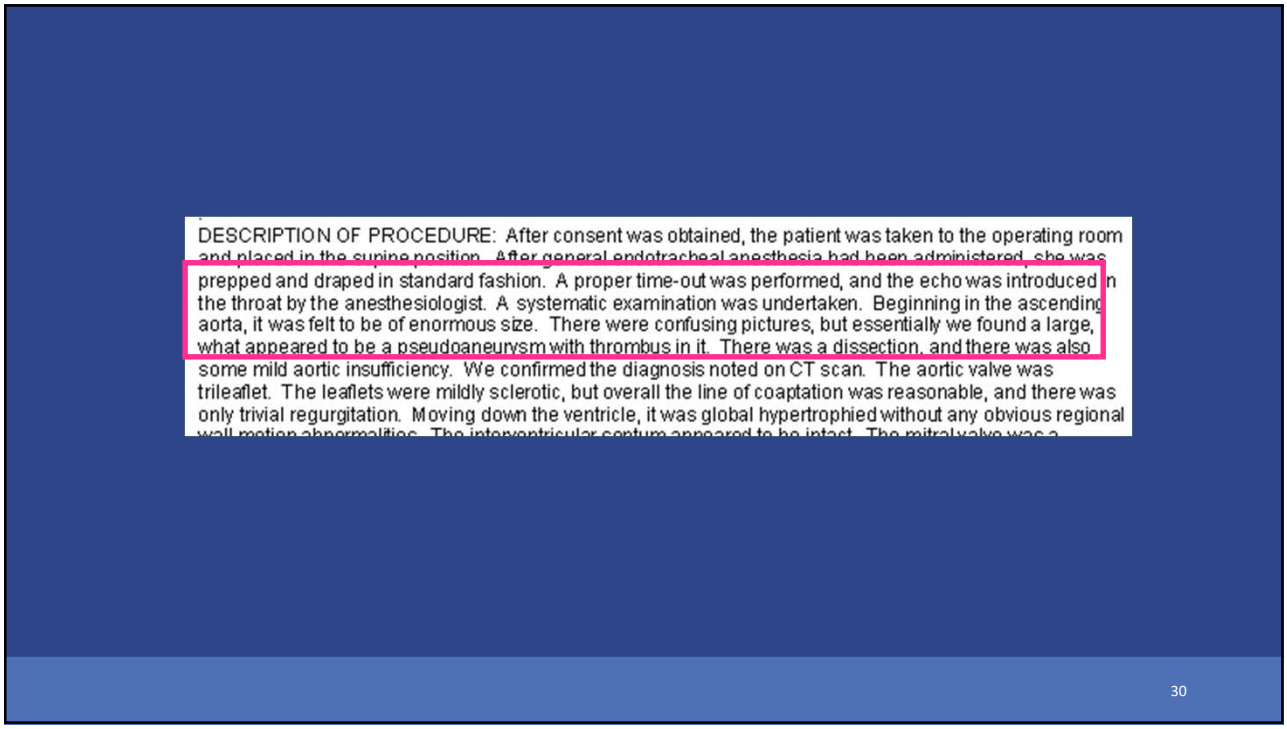

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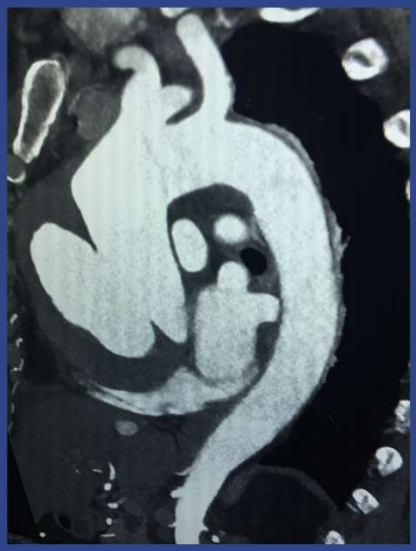

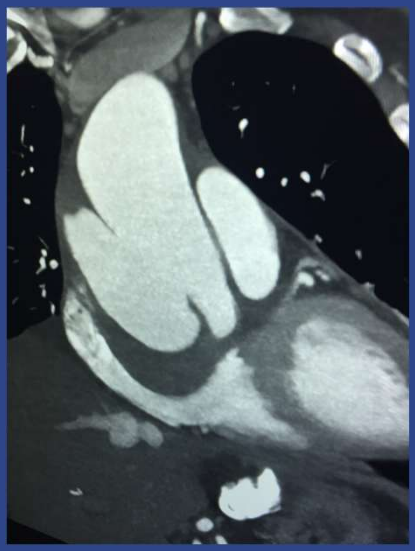

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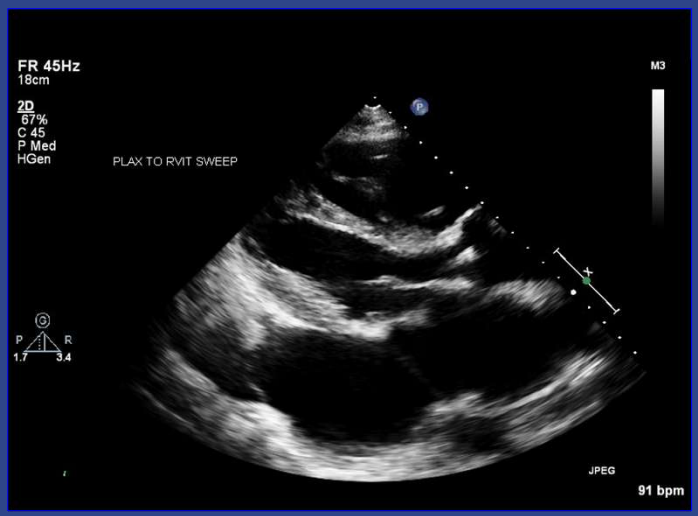
Case



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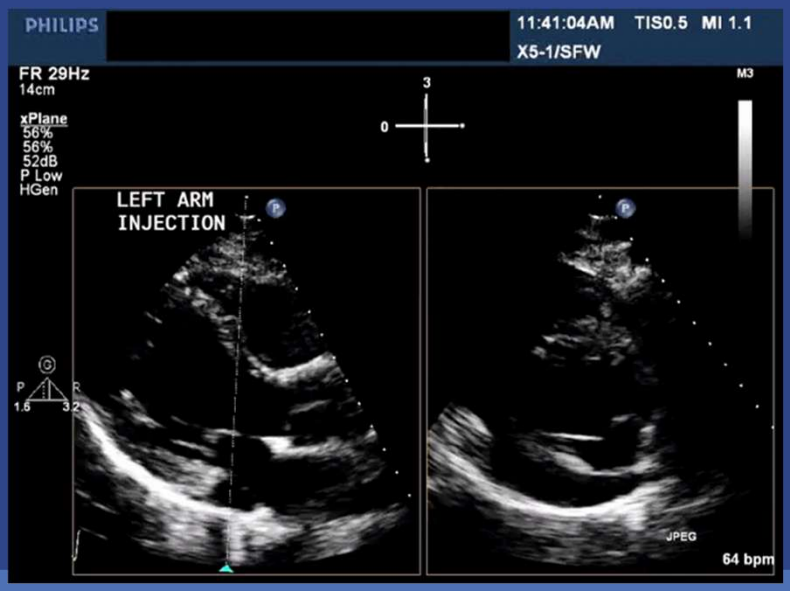

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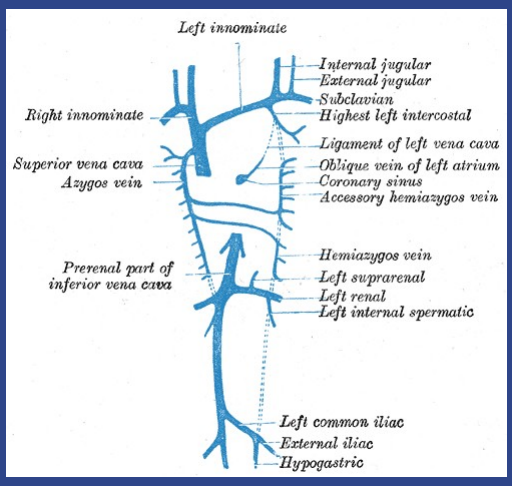
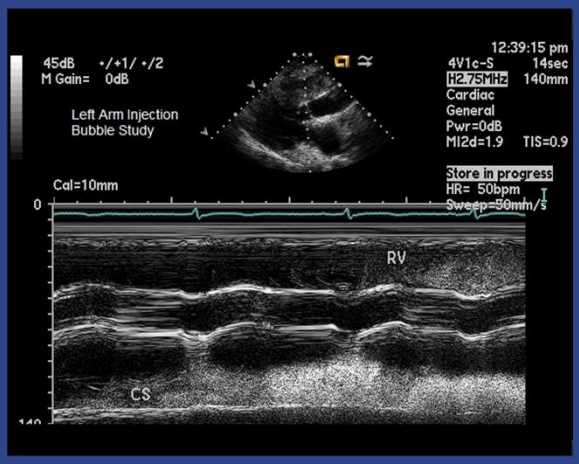
Persistent Left SVC





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Case

- Patient is an 86 old year Female.
- History of Hypertension, Hyperlipidemia, Pleural Effusion, COPD, Prior CVA, GERD, GI bleed, Obstructive Sleep Apnea, Chest Pain and Small Bowel Obstruction.
- Clinical Indication For The Echocardiogram Was For Shortness of Breath.

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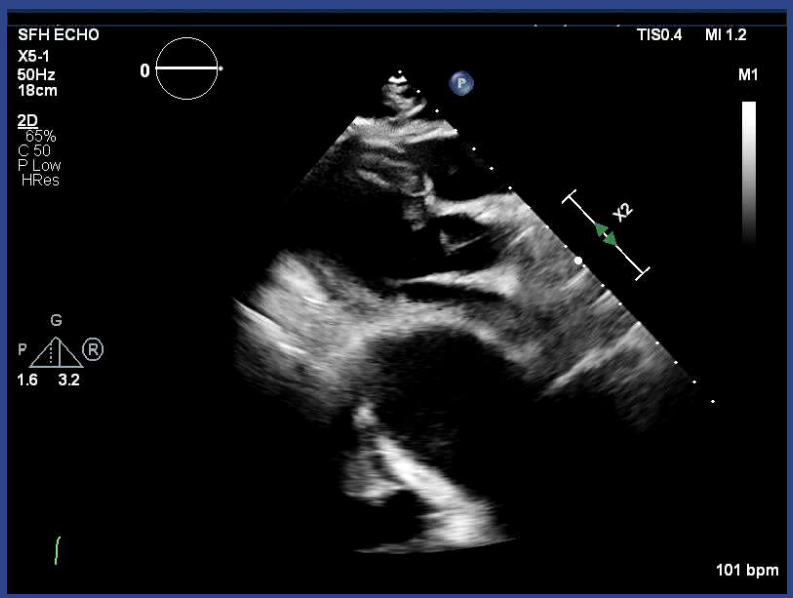

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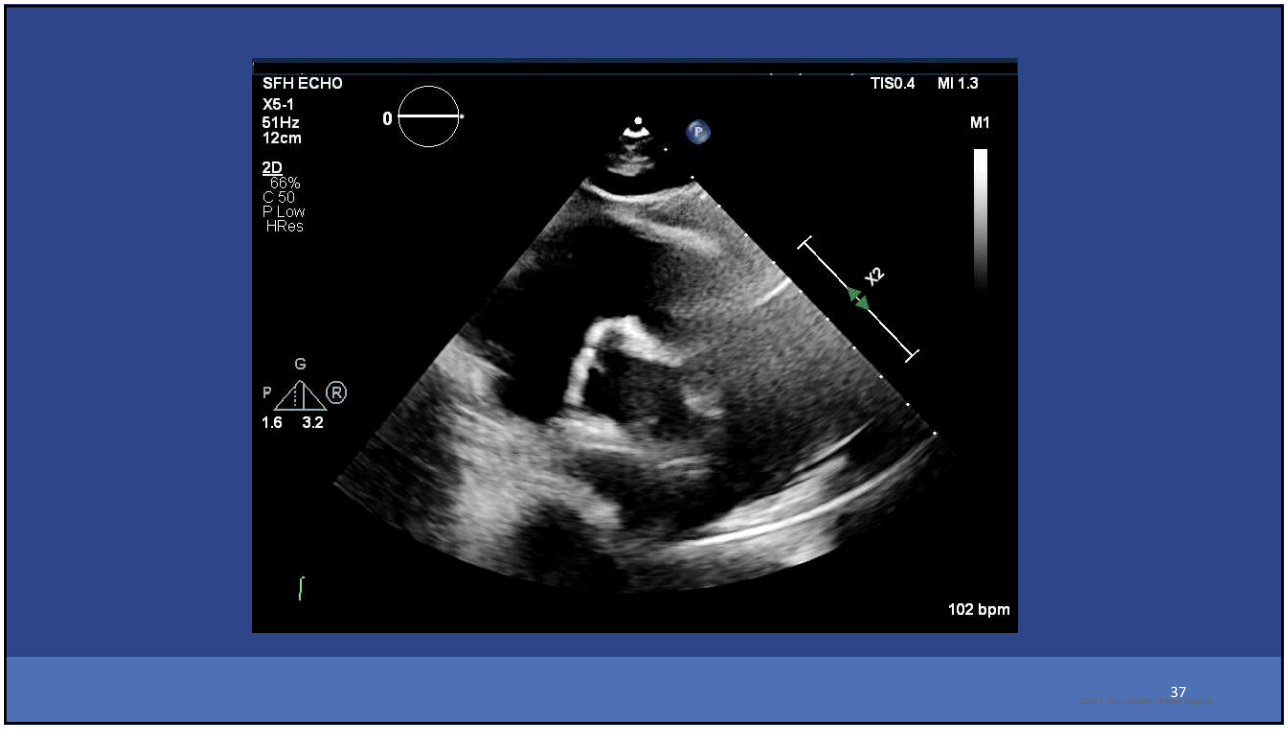

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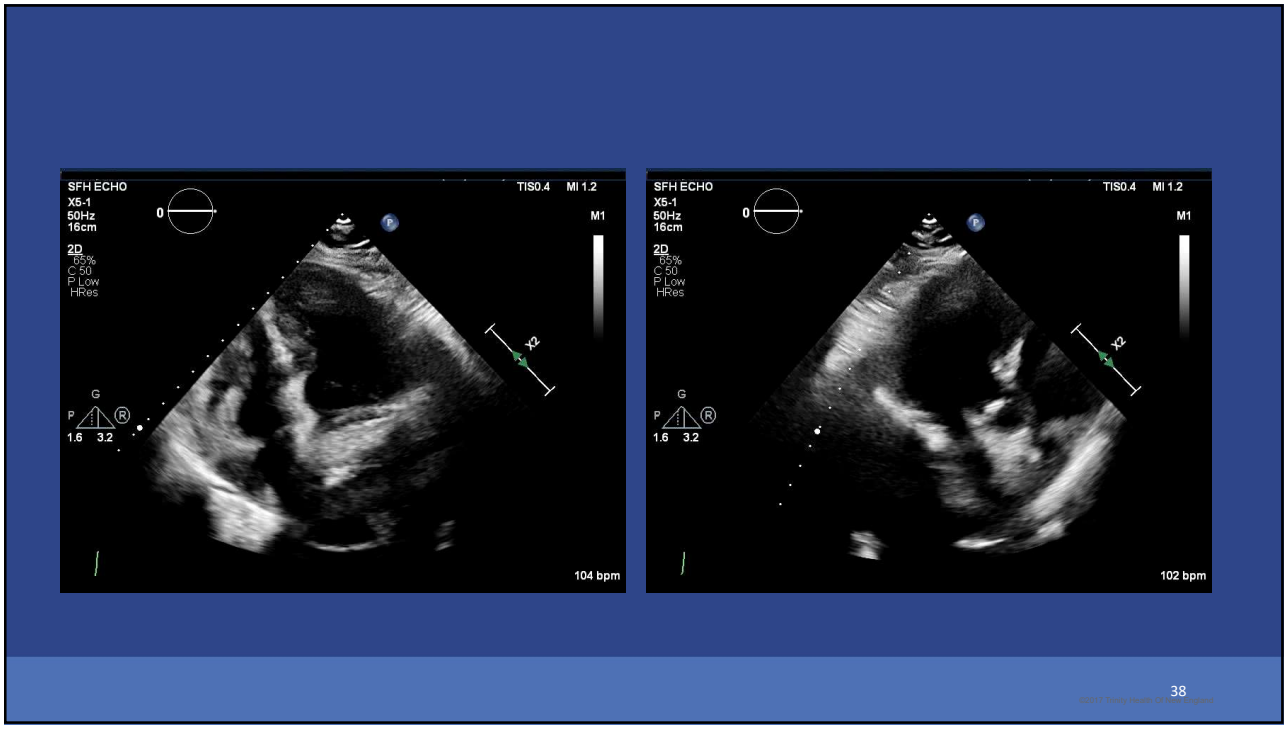

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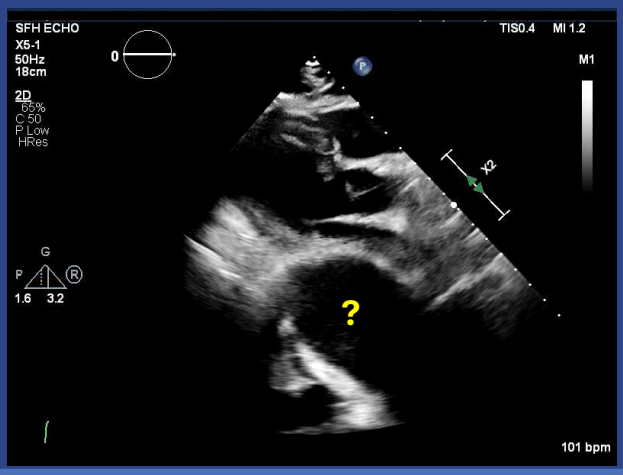
What is compressing the LA? What could we do to help?



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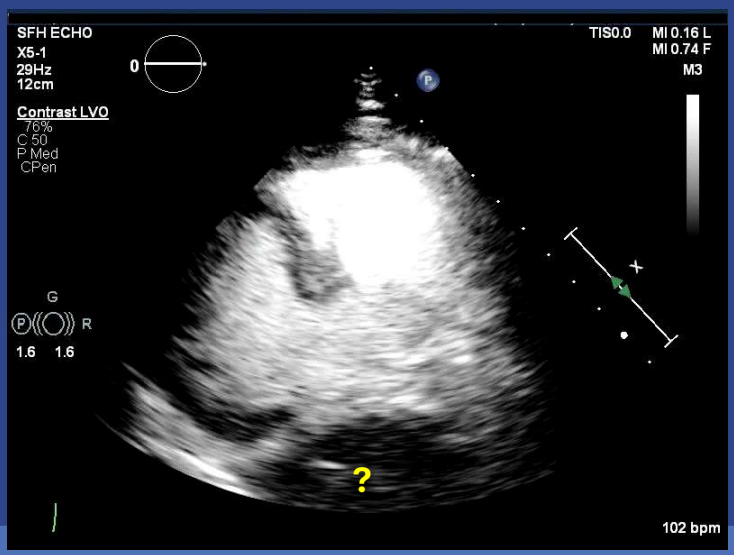
Is it inside or outside of the heart?



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Oh no….. The patient is NPO!!!
Why does that matter?

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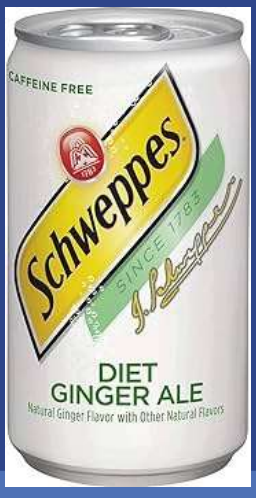
Non-Traditional Bubble Study?



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CASE REPORT | VOLUME 20, ISSUE 12, P1414.E5-1414.E7, DECEMBER 2007 Download Full Issue

Large Mass Impinging on the Left Atrium: Diagnostic Value of a New Cocktail

Matthew Smelley, MD • Roberto M. Lang, MD

Published: July 12, 2007 • DOI: https://doi.org/10.1016/j.echo.2007.05.010

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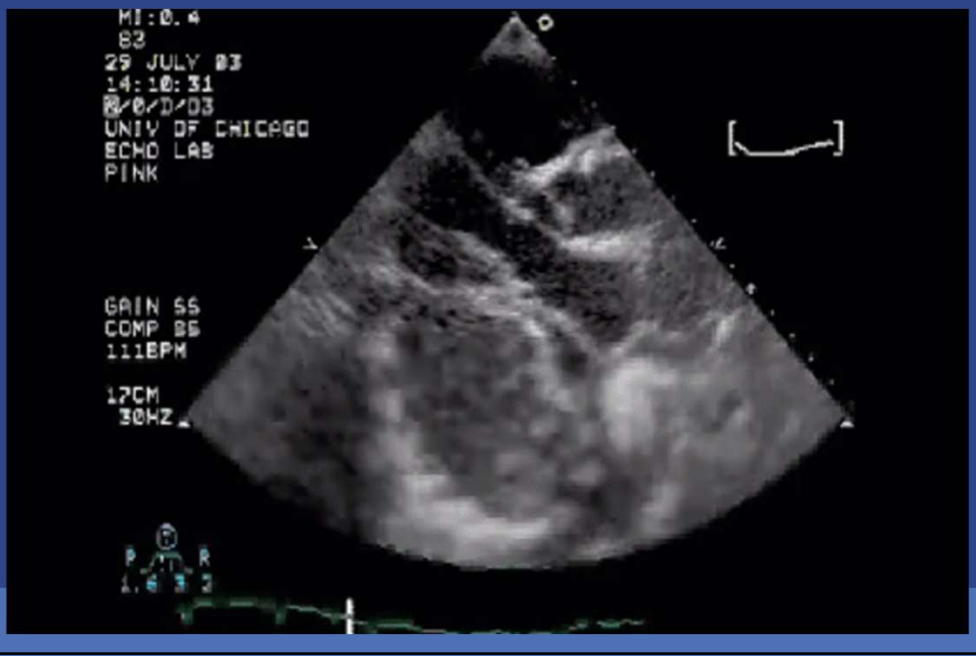

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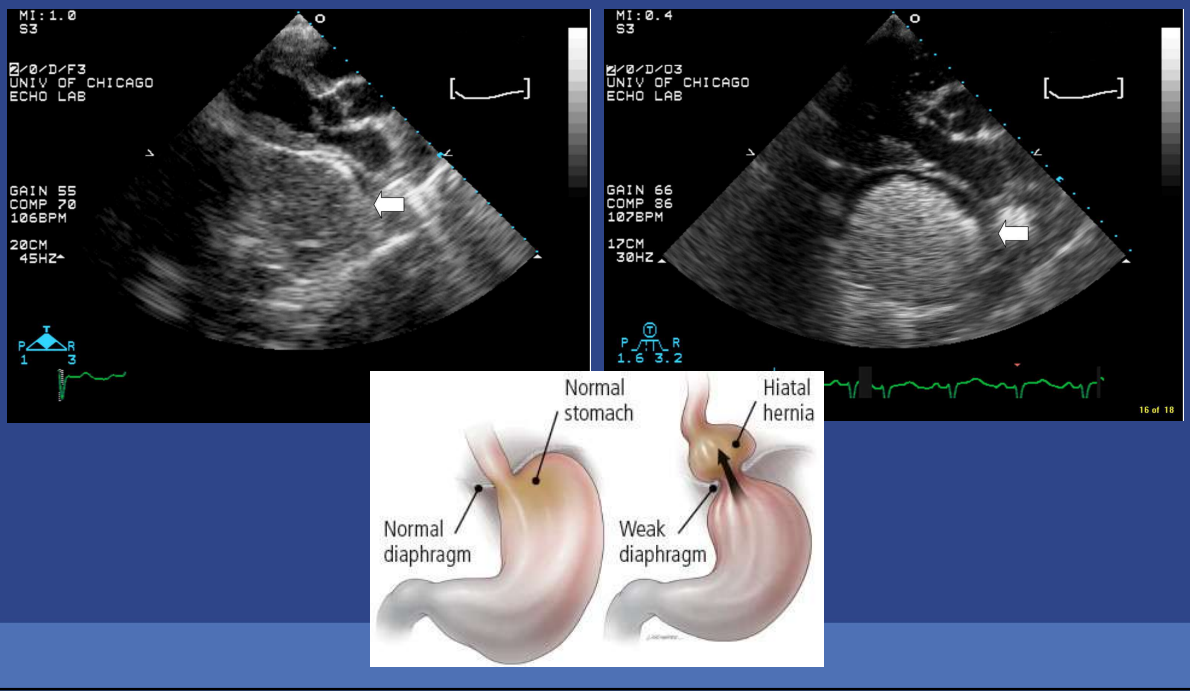

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Case

- 61-year-old male, with a history of hypertension who was admitted with late presenting posterior wall MI, pulmonary edema cardiogenic shock requiring IABP and VV ECMO, found to have severe triple-vessel CAD on cardiac catheterization, course complicated by acute renal failure recurrent pulmonary edema/cardiogenic shock secondary to papillary muscle rupture and acute mitral regurgitation, requiring intra-aortic balloon pump and emergent MVR and CABG x4

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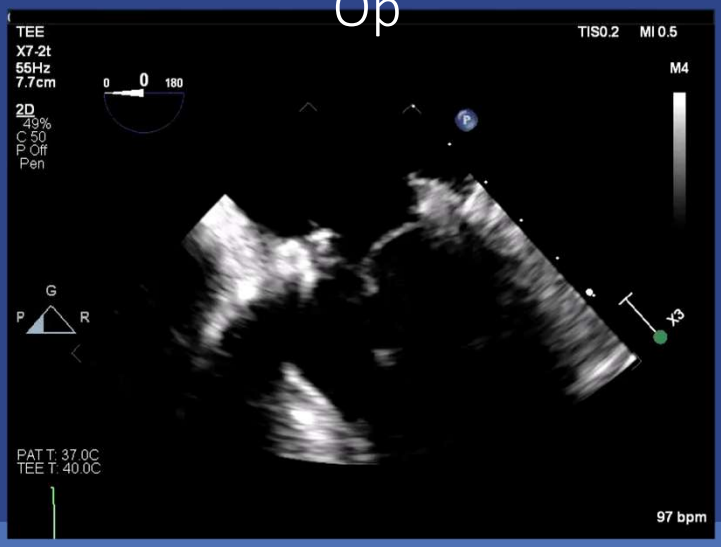
TEE ordered for suspicion of endocarditis Post Op



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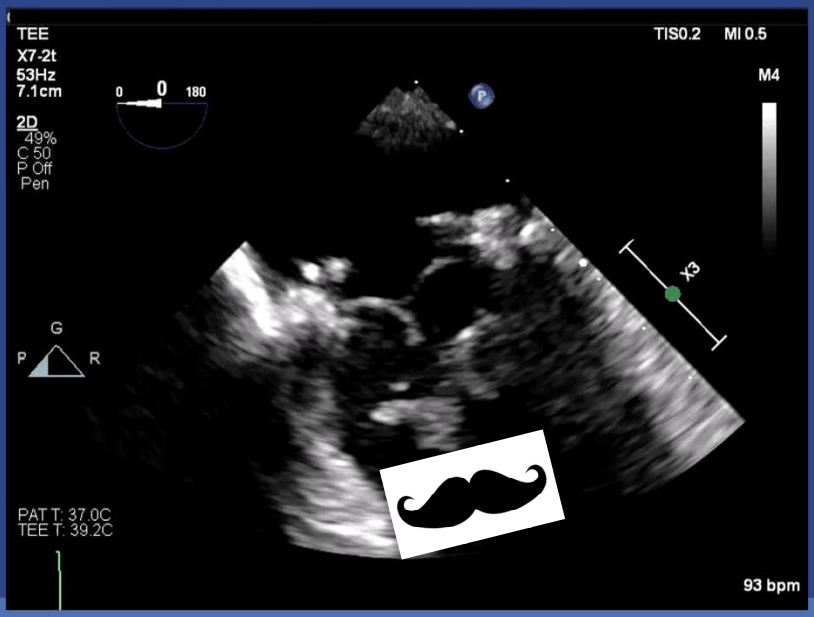

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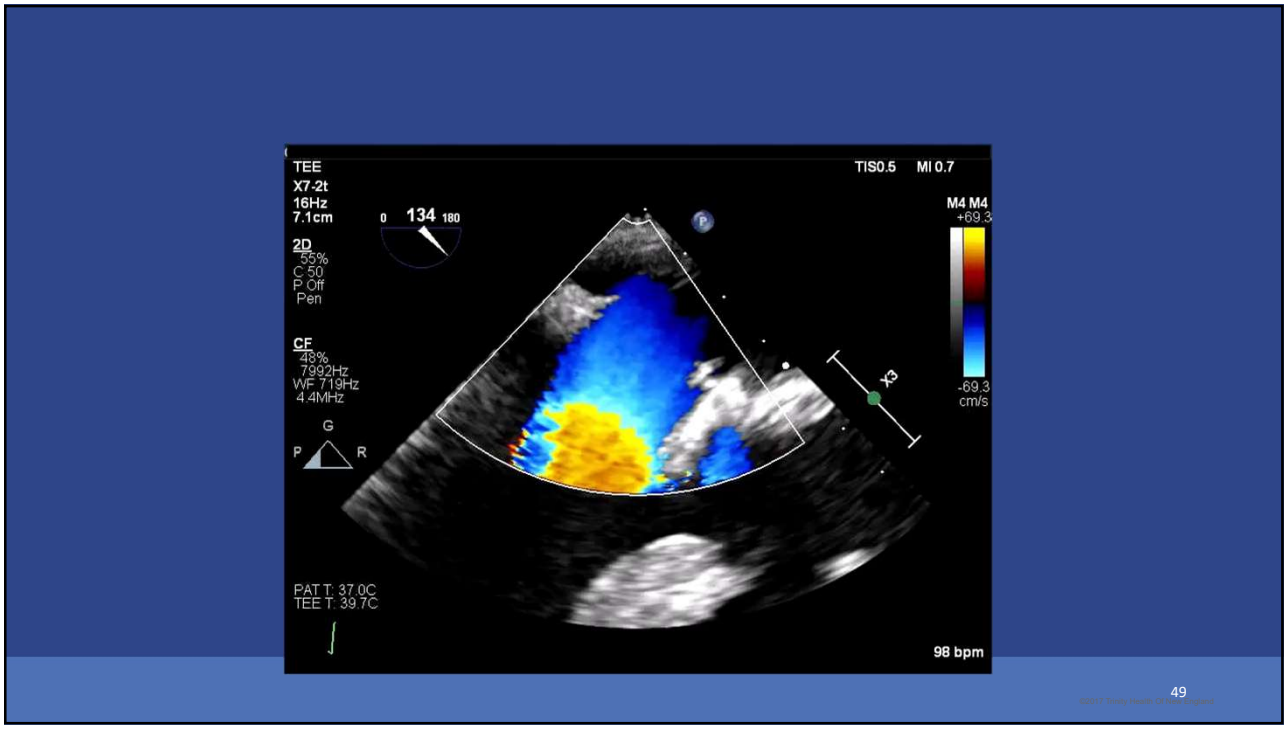

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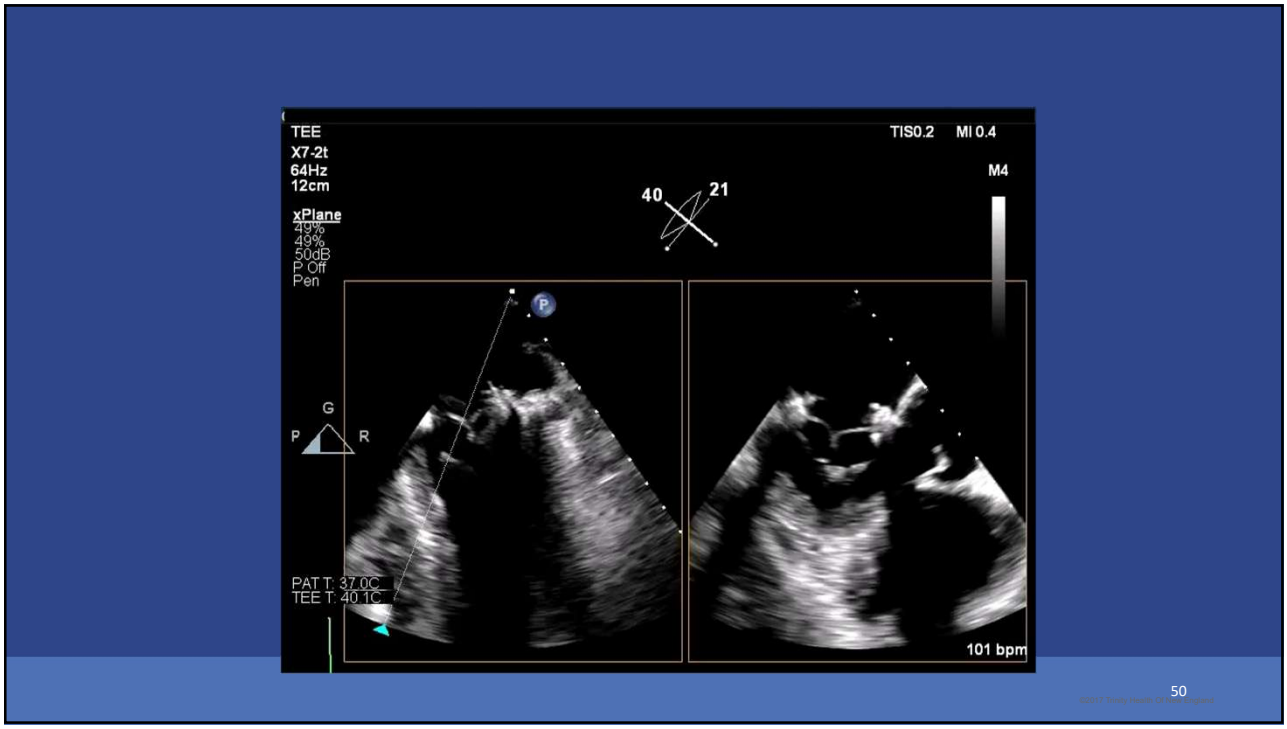

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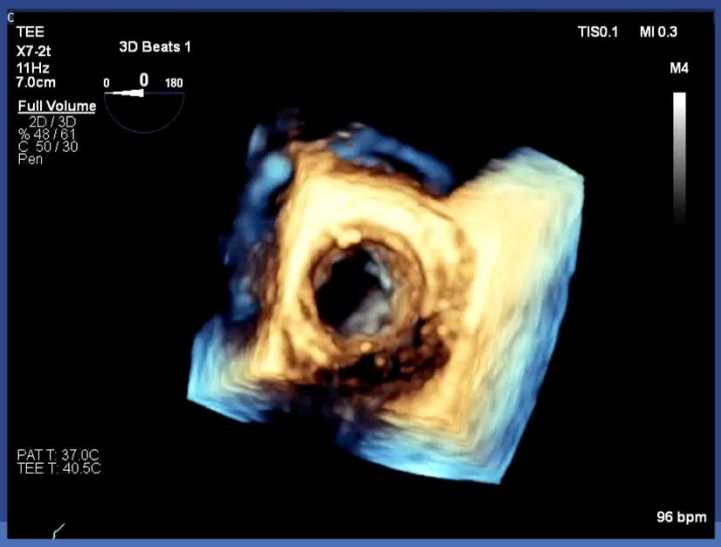

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What could that be?

- Could that be endocarditis?
  - What are the blood cultures?
  - Is it on the flow side?
  - Reminant chord?
- What did the intra op TEE show?

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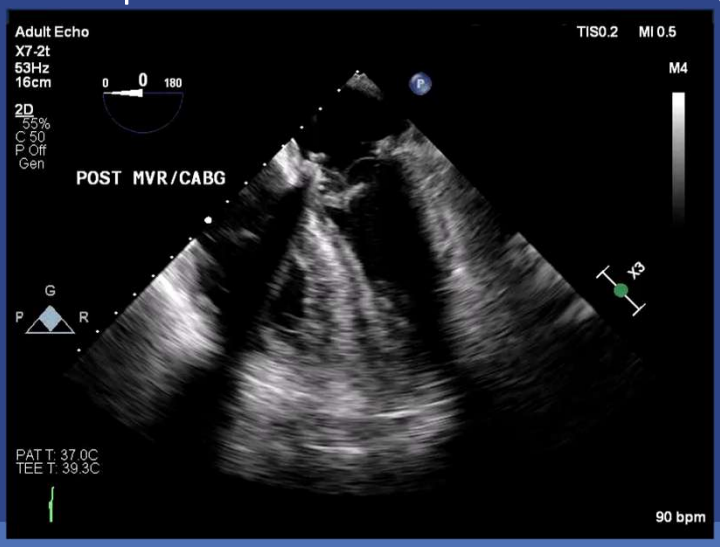
Intra Op TEE from a few weeks ago



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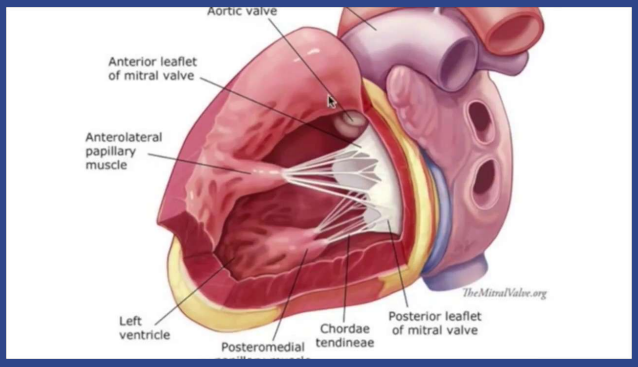
Findings

- The ruptured papillary muscle was not removed from the prior surgery



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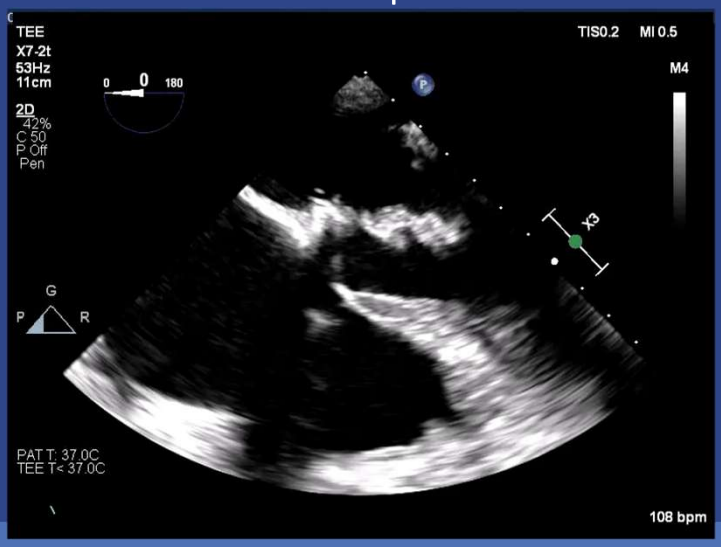
A few months later he presents with a fever



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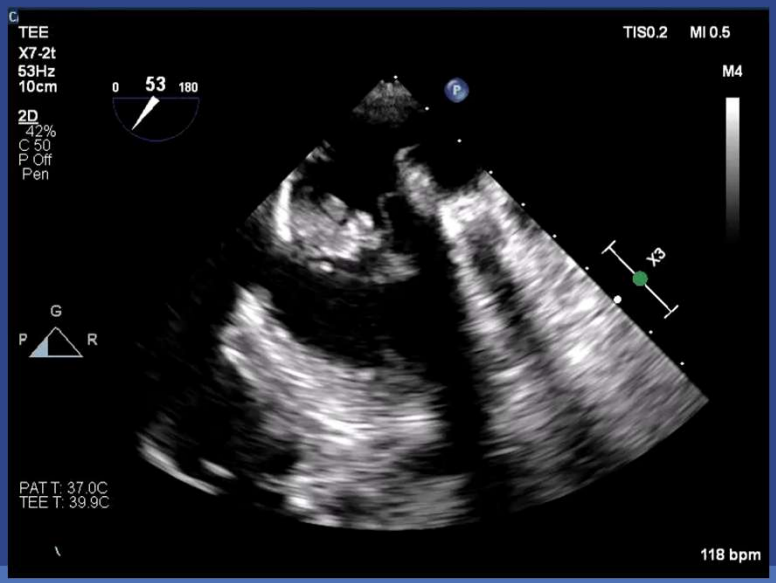

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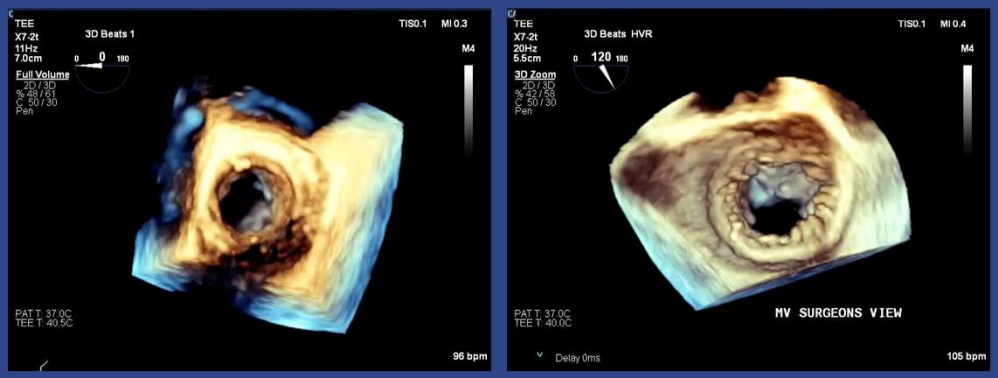
TEE comparison



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Case:
60 YO female with recent unexplained SOB

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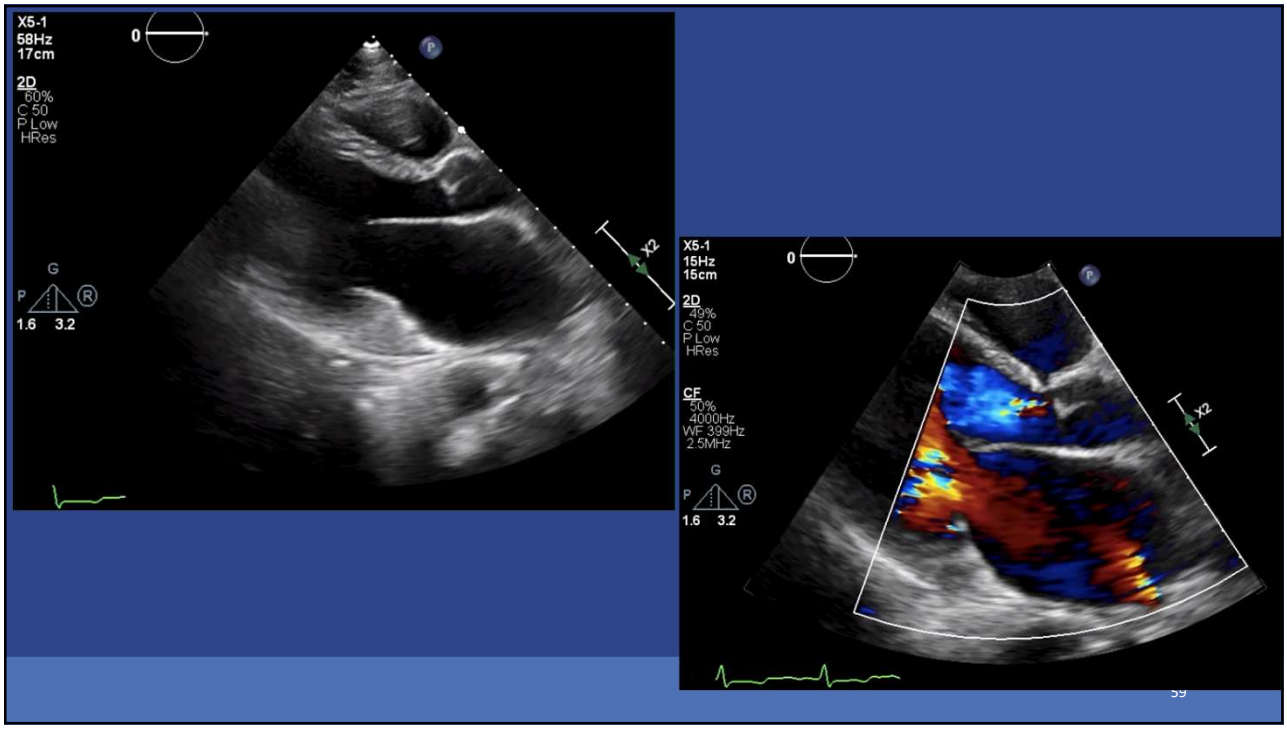

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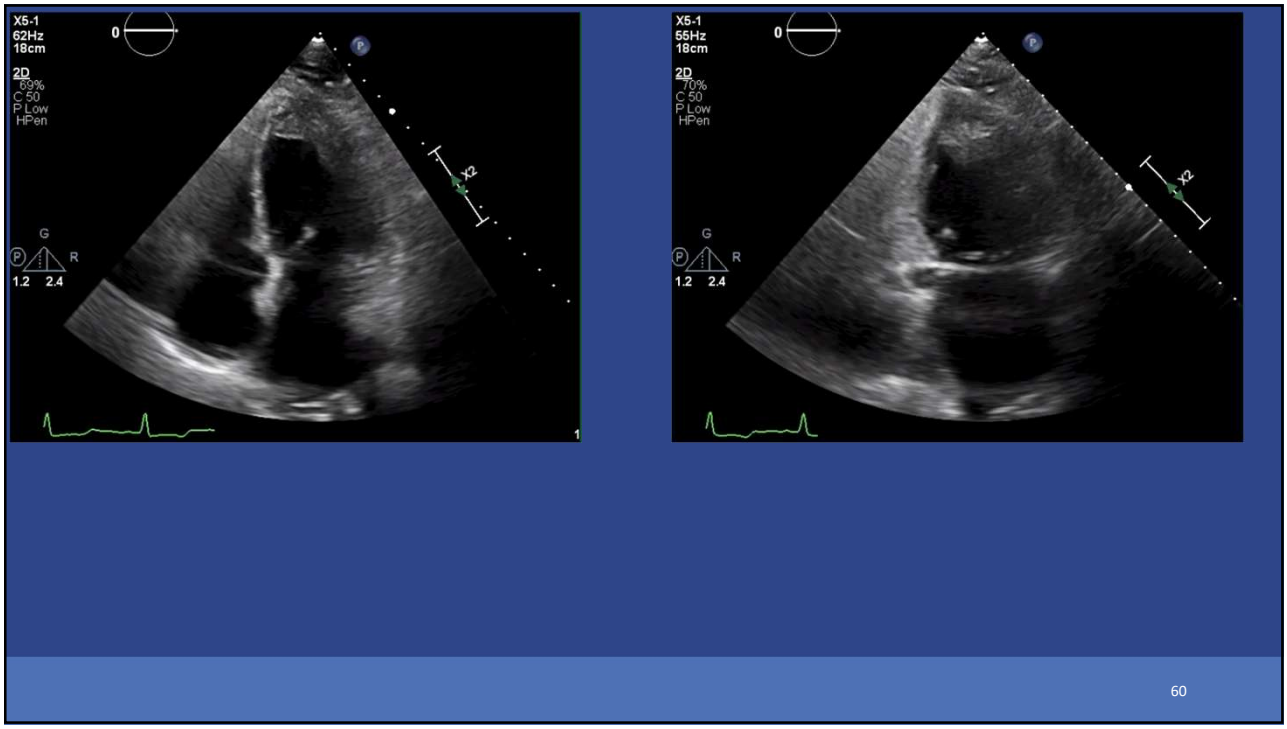

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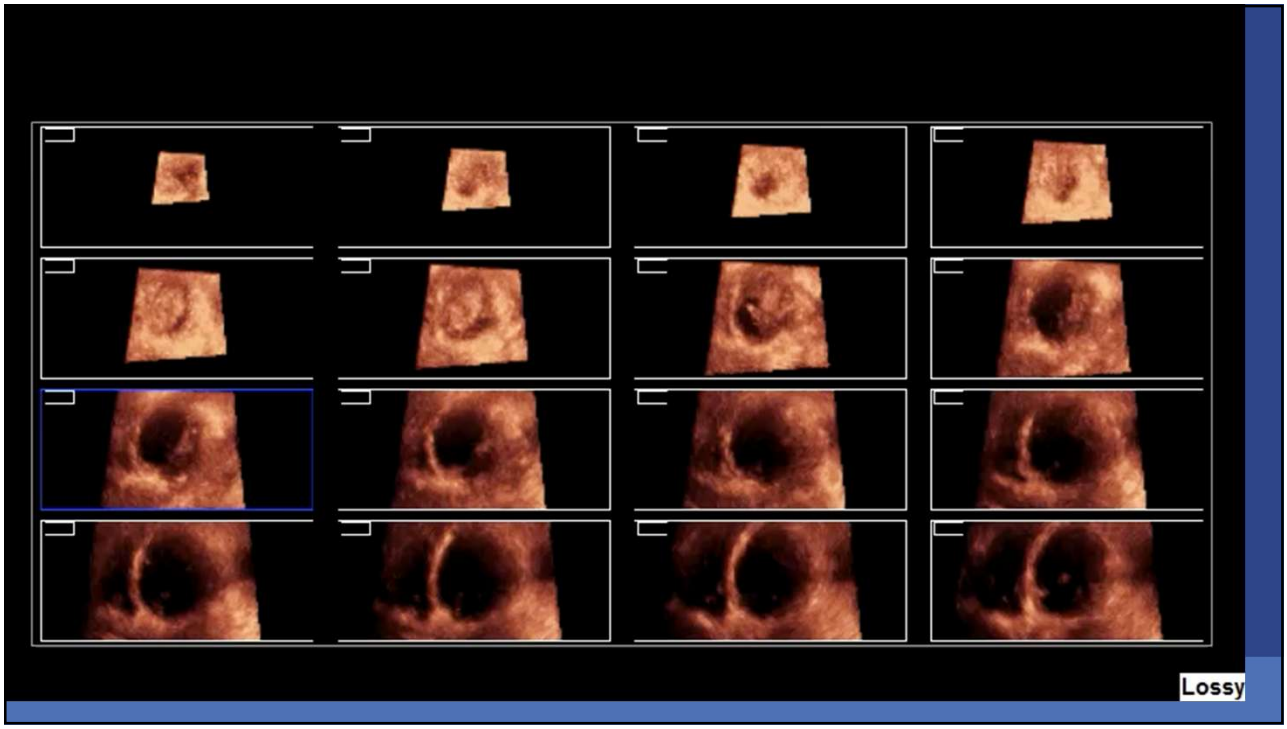

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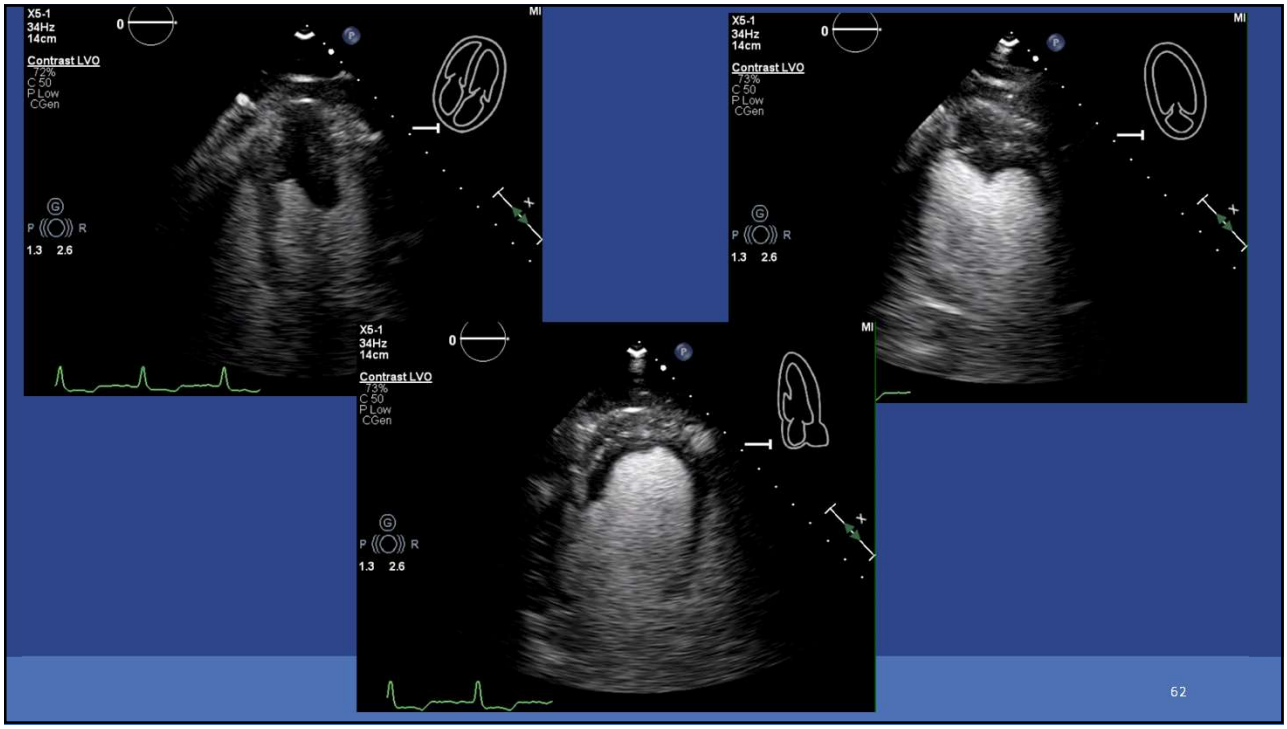

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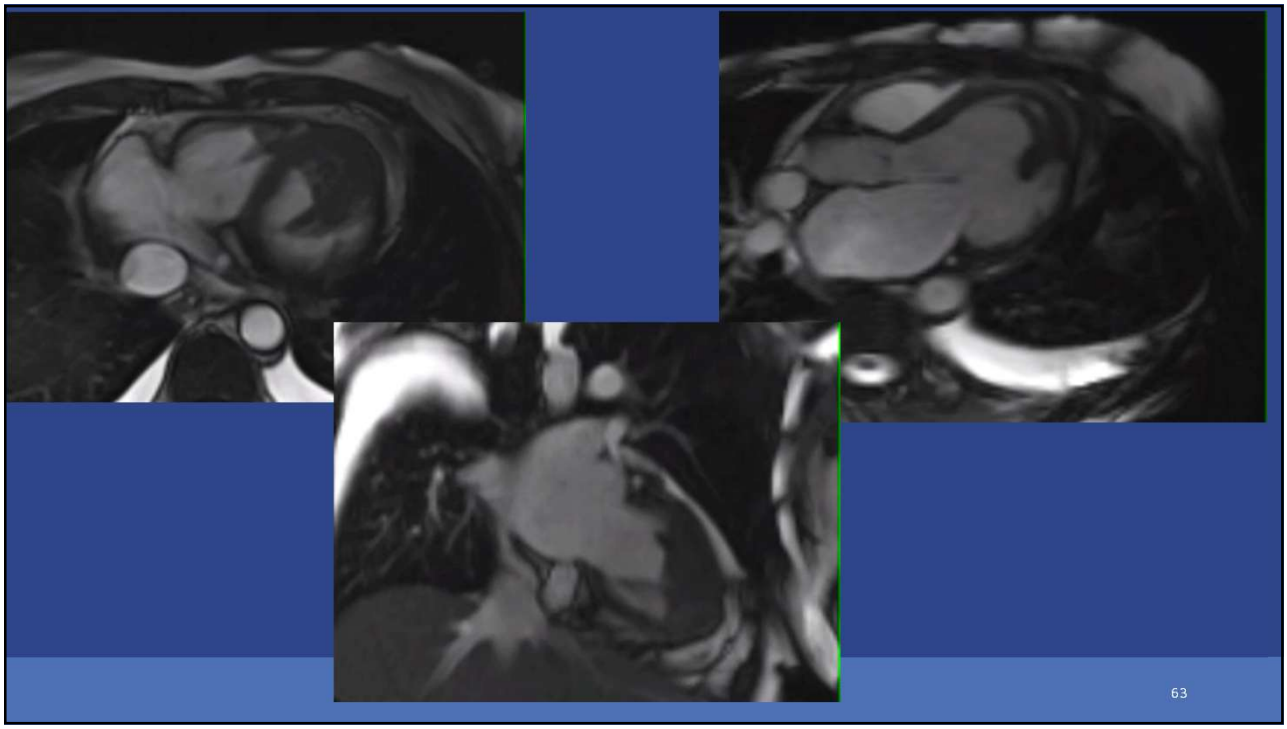
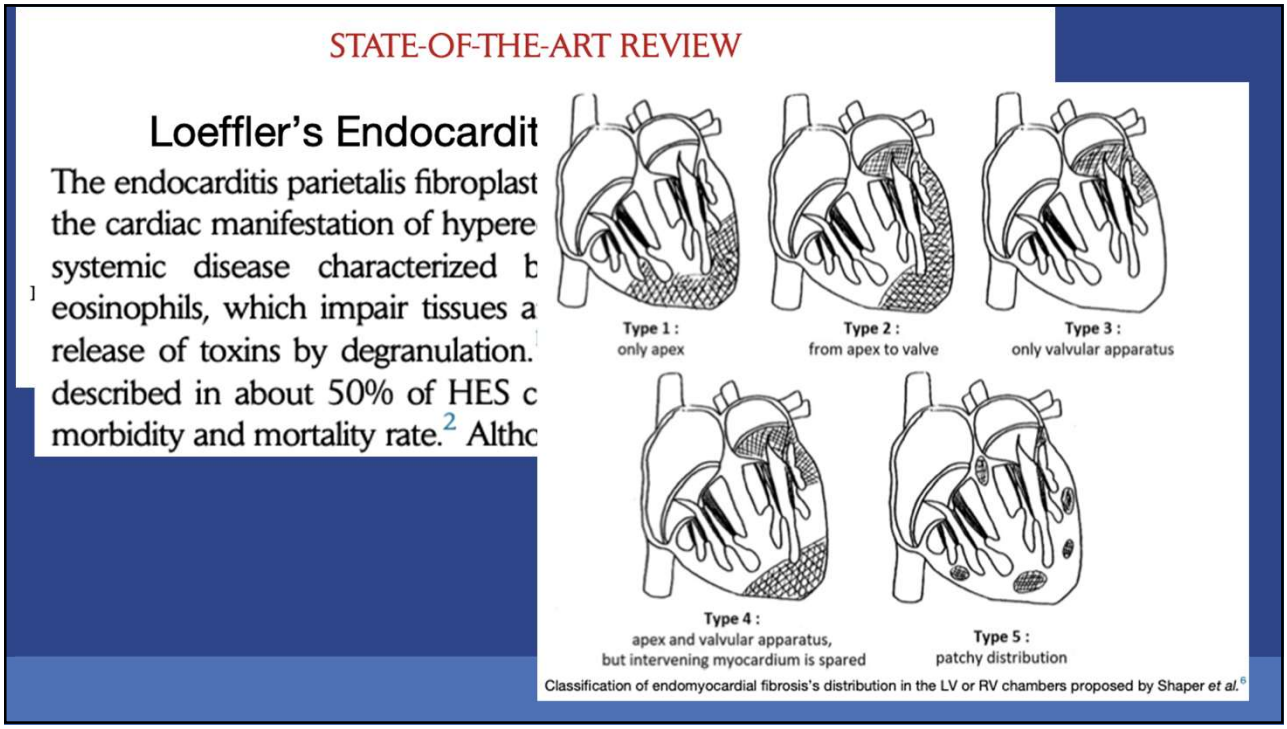
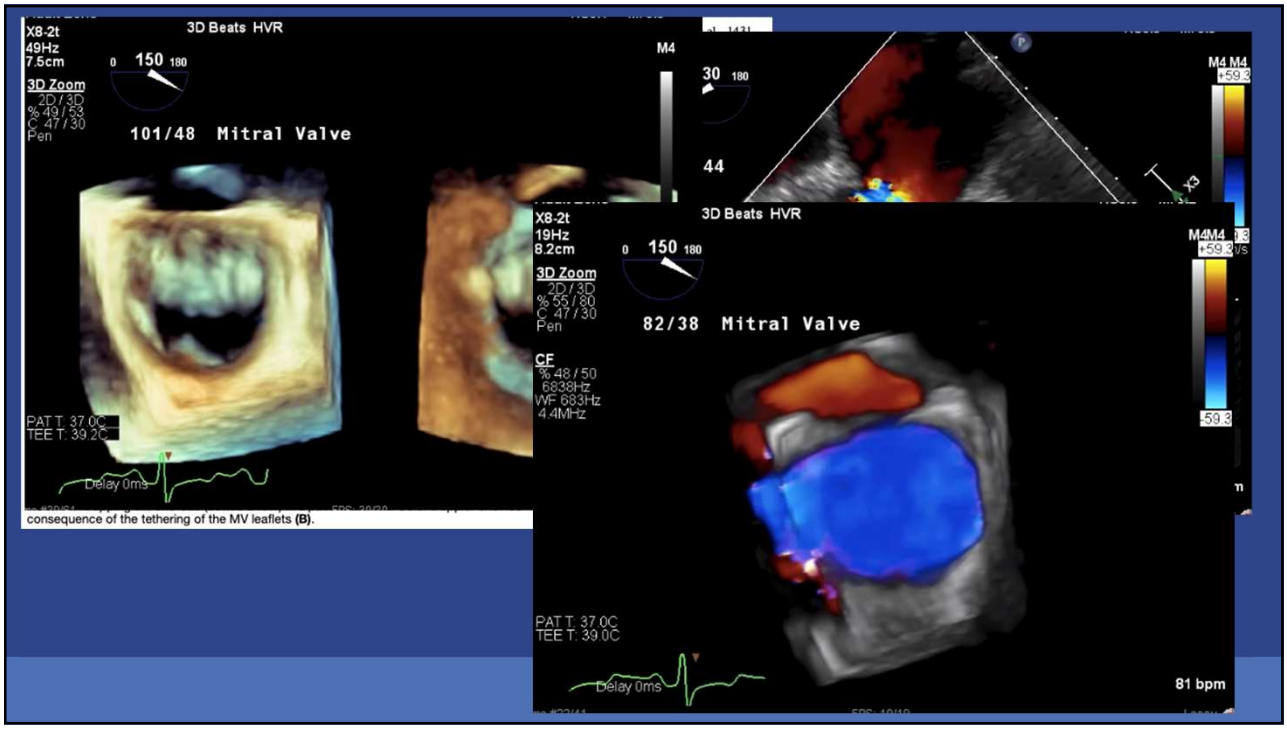


63

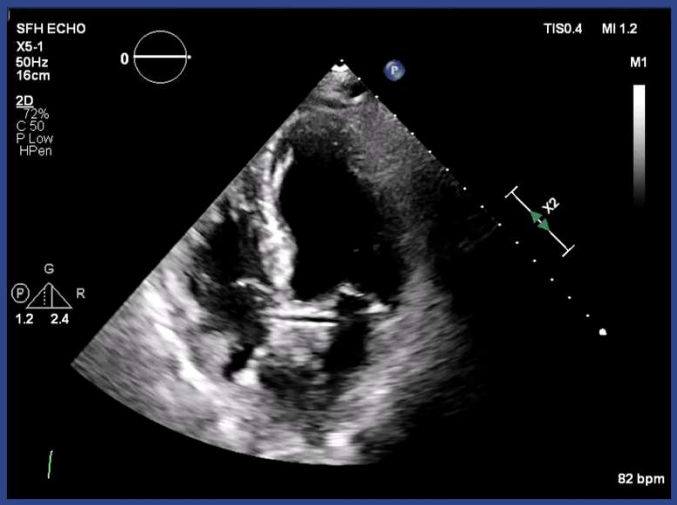


64



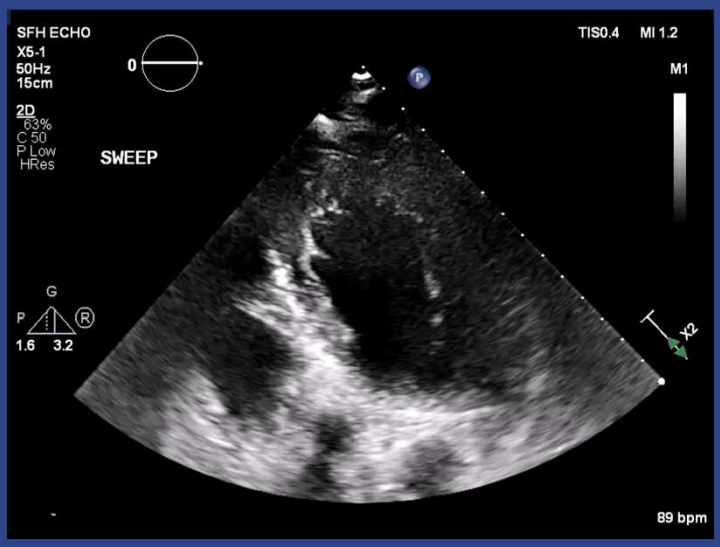
65

Is this an Artifact?



66

What about now?



RAC sign (Retro aortic coronary artery)

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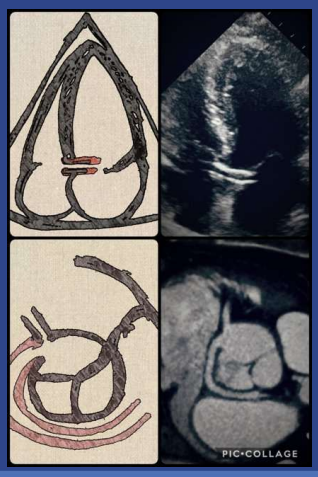
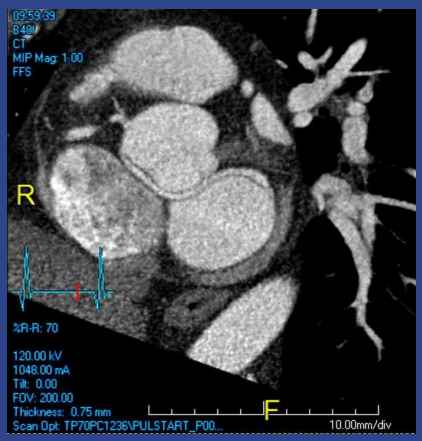
RAC Sign





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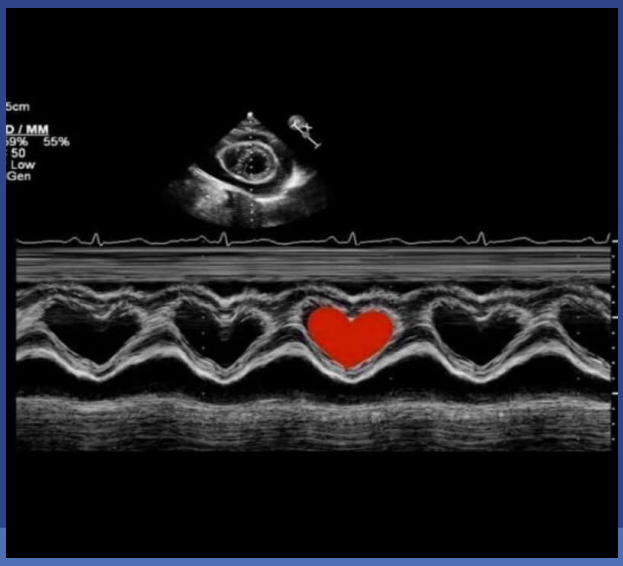
Thank You!



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