THE BASICS FOR A NOT SO BASIC SURGICAL FIELD

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OBJECTIVES

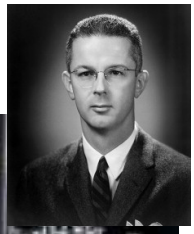
Upon completion of this lecture, participants should be able to:

1. Understand basic cardiac surgical operative terminology
2. Treatment for patients with ischemic cardiomyopathy
3. Surgical treatment for hypertrophic cardiomyopathy

2

History of Cardiac Surgery

MAYO CLINIC



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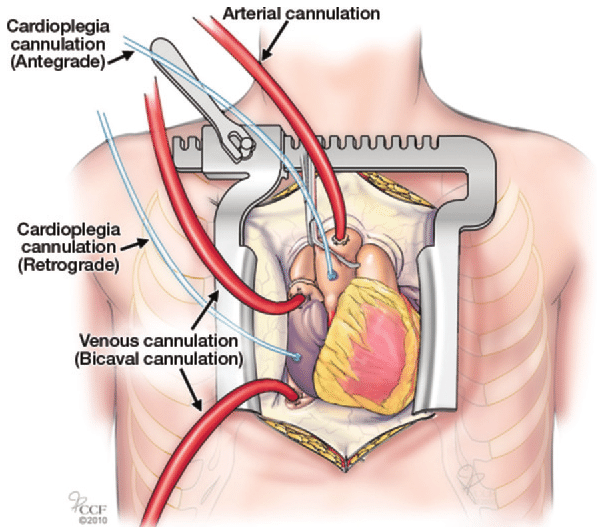
Cannulation



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Dissecting the Operative Note

- Cross-clamp time
- Bypass time
- Difference between cross-clamp and bypass times
- Blood product usage
- Heart function/EF – visually and on TEE
- Use of mechanical devices

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Patients with Ischemic Cardiomyopathy

- Nearly 400,000 coronary artery bypass grafting operations are done yearly
- Largest risk factor for everything bad is low EF
- Multitude of supportive treatments
  - Inotropes
  - IABP
  - Impella
  - ECMO
  - VAD/Transplant

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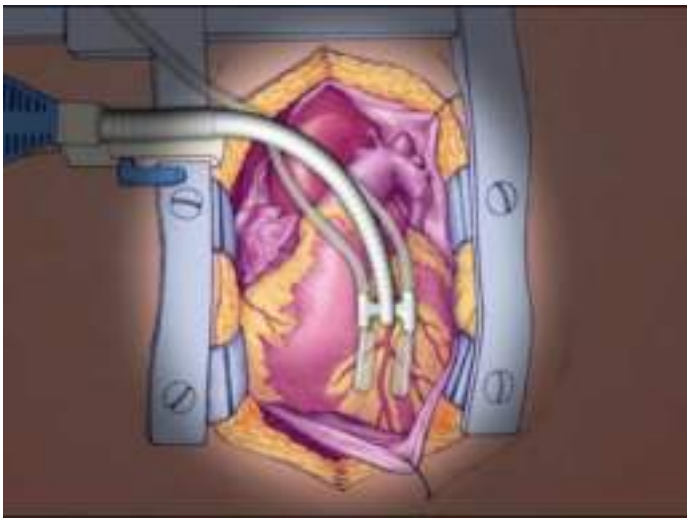
Warm-Beating CABG



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Warm-Beating CABG

- Technically more difficult
- On pump = hemodynamic stability
- Warm-beating = animated heart/no cardioplegia or cross-clamp
  - Blood continually flows to the heart
  - Interrupted one vessel at a time with shunt in place
- Several case series
  - Less patients with decreased cardiac output
  - Improvement in LV function
- Meta-analysis – 12/2015
  - Fewer postoperative MI events (p=0.03)
  - Less use of IABP

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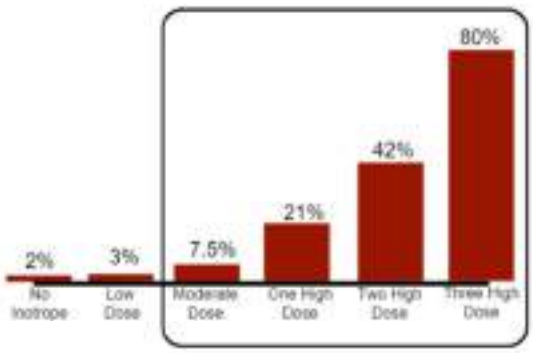
LIMITATIONS OF CONVENTIONAL THERAPY

Mortality Risk with Inotropes/Vasopressors in Surgery[1]

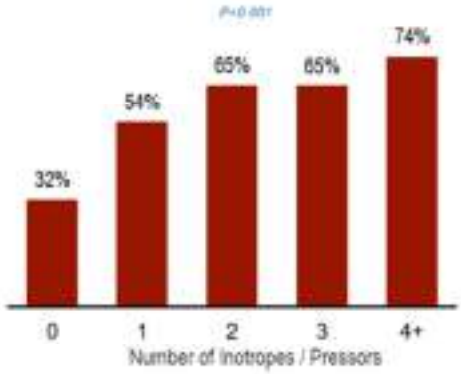
N = 3462



Mortality Risk with Inotropes/Vasopressors in PCI

cVAD Study[2]

N=287



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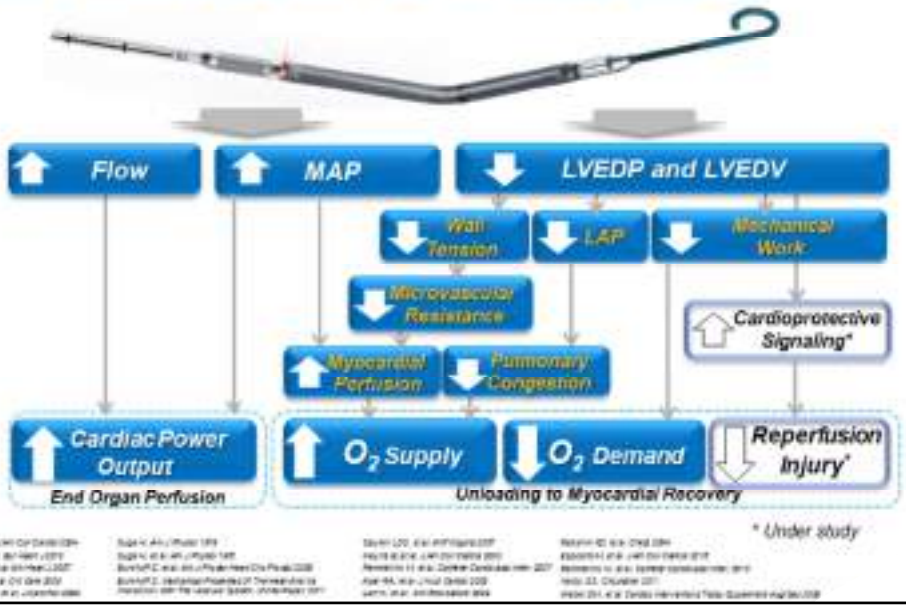
HEMODYNAMIC EFFECTS OF IMPELLA DEVICES



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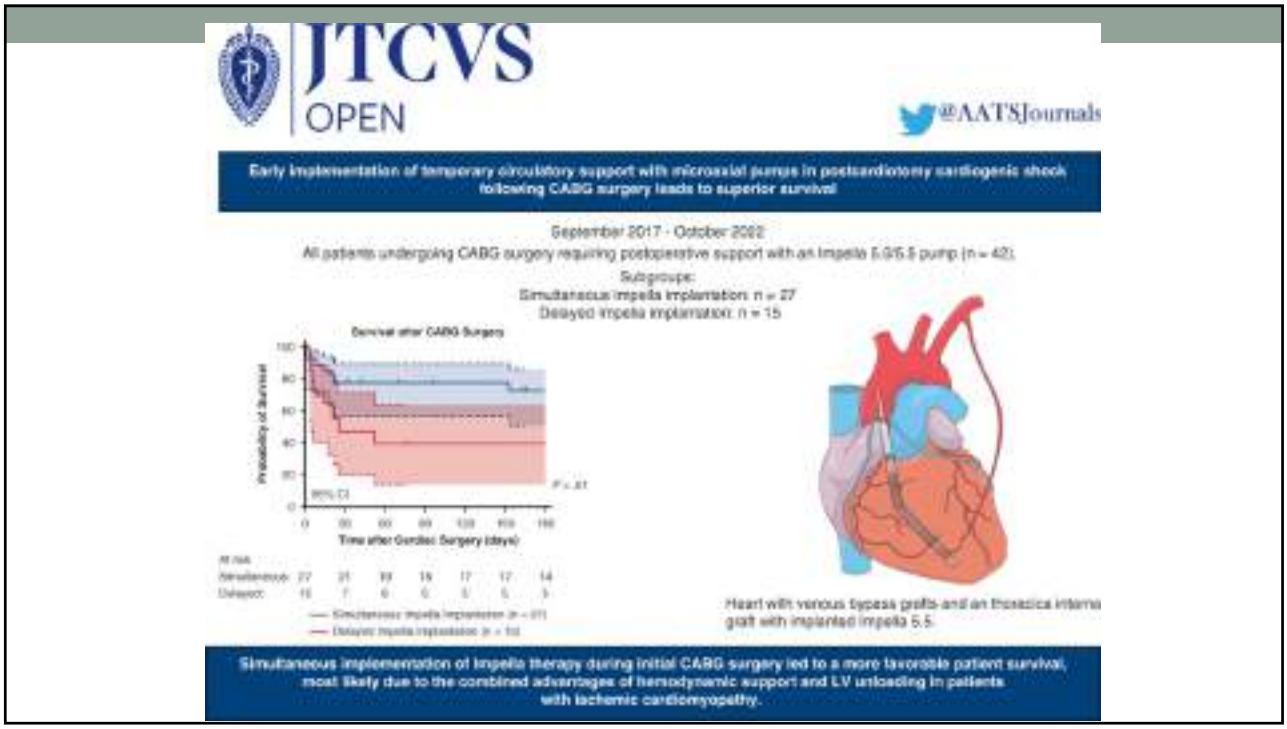

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HYPERTROPHIC CARDIOMYOPATHY

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Morrow AG, Braunwald E. Functional aortic stenosis: a malformation characterized by resistance to left ventricular outflow without anatomic obstruction. Circulation. 1959; 20:181–189.

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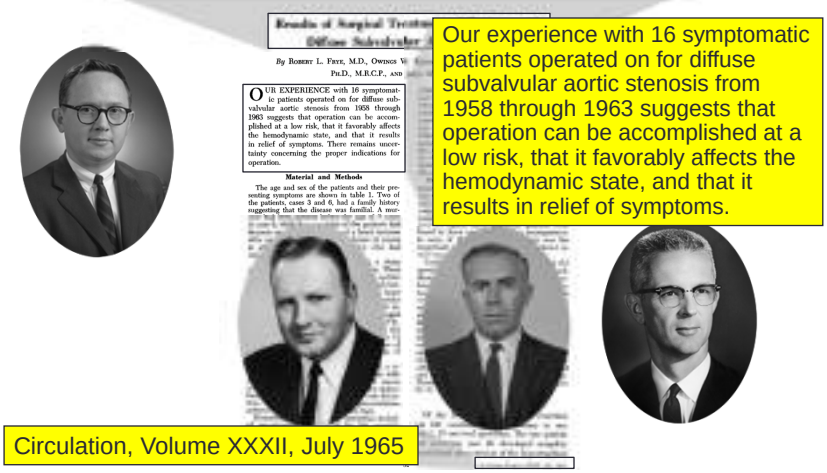
Results of Surgical Treatment of Patients with Diffuse Subvalvular Aortic Stenosis



Our experience with 16 symptomatic patients operated on for diffuse subvalvular aortic stenosis from 1958 through 1963 suggests that operation can be accomplished at a low risk, that it favorably affects the hemodynamic state, and that it results in relief of symptoms.

Circulation, Volume XXXII, July 1965

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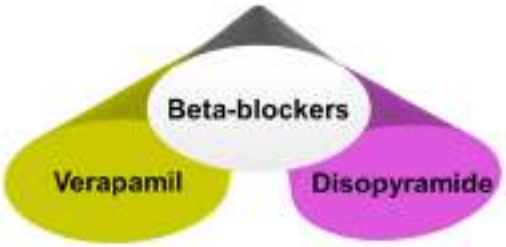
Medical Therapy in HOCM

Goals

- ↓ Exercise-induced gradient
- ↓ Oxygen-demand
- Prolong diastolic filling period



If maximum dose fails

Ablation
Myectomy

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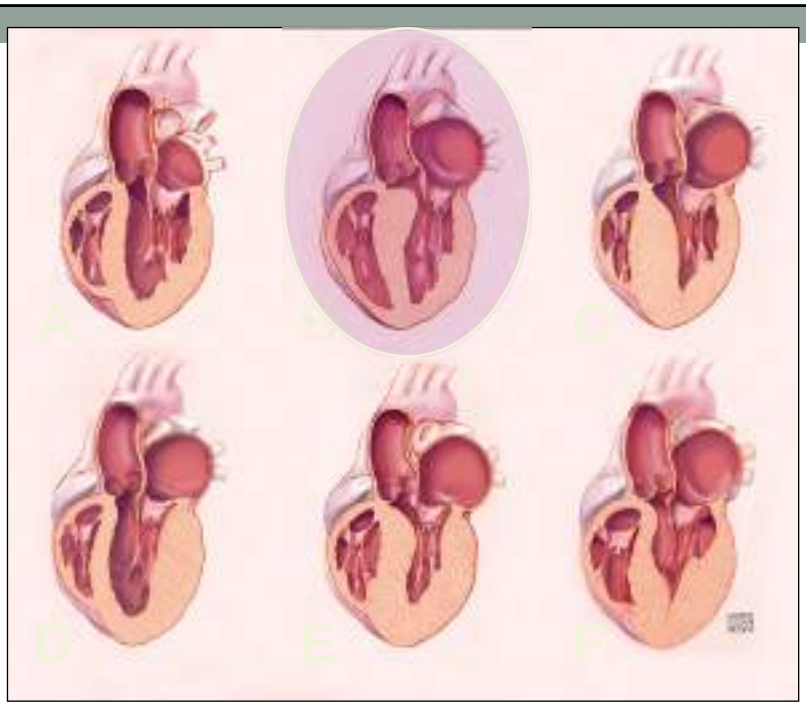

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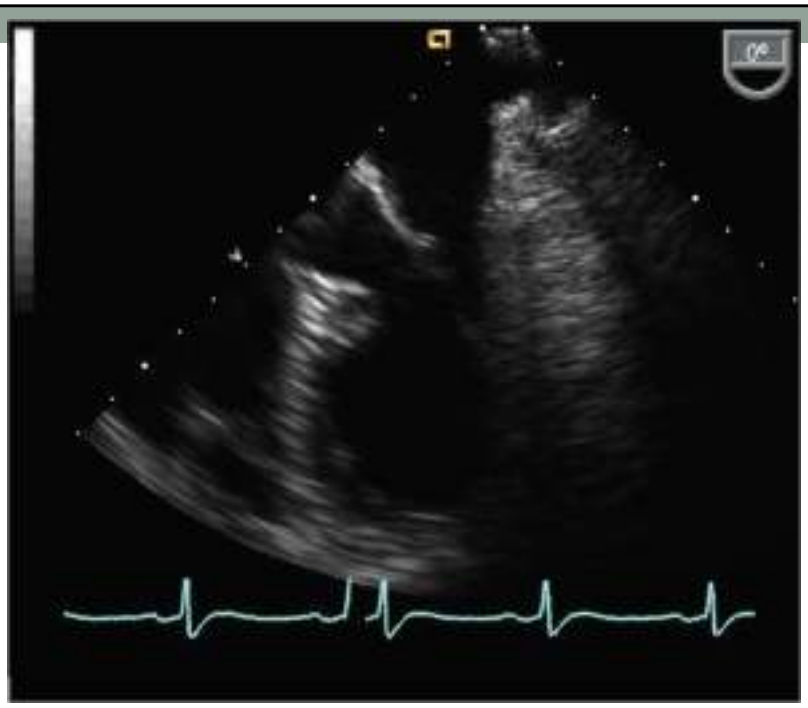

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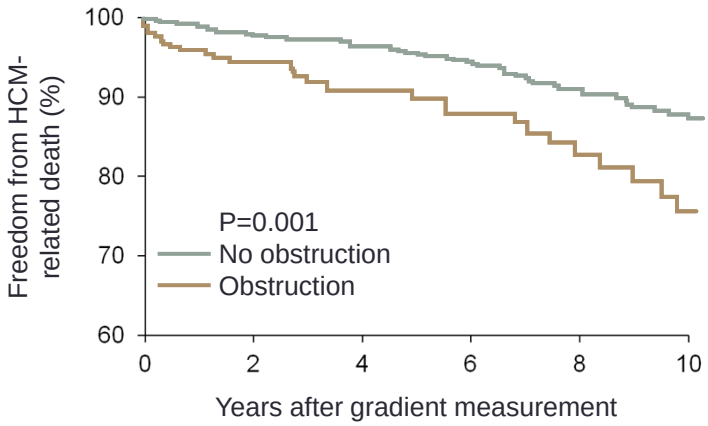
HOCM-Related Death Among Patients with Basal LVOT Gradient >30 mm Hg and Patients Without Obstruction



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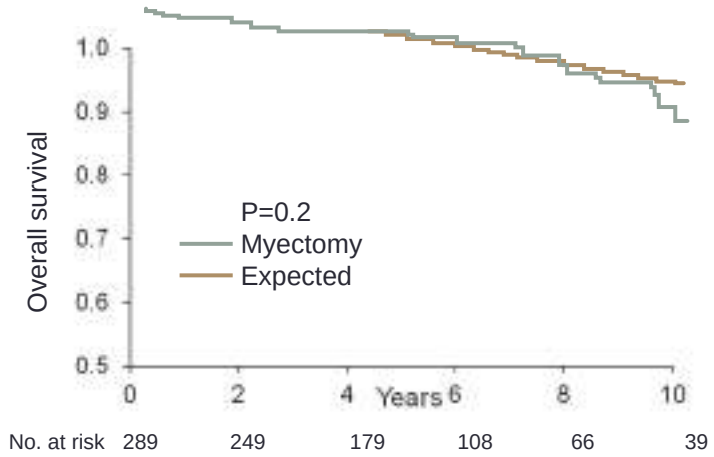
Survival Post Myectomy for HOCM Compared with the Age- and Gender-Matched General U.S. White Population



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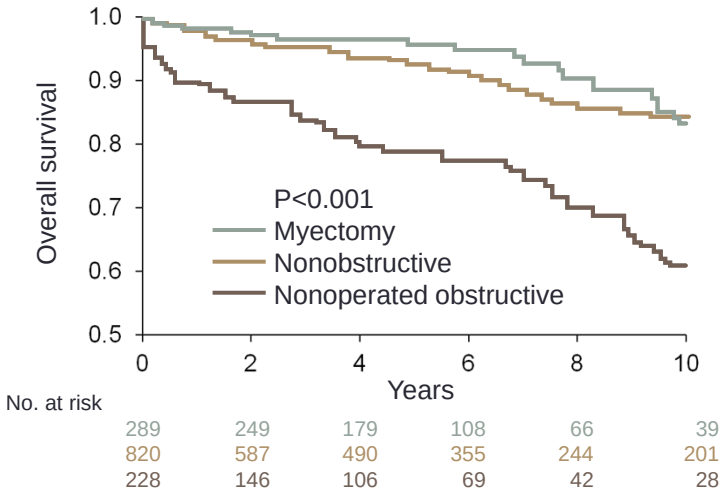
Survival Free from All-Cause Mortality



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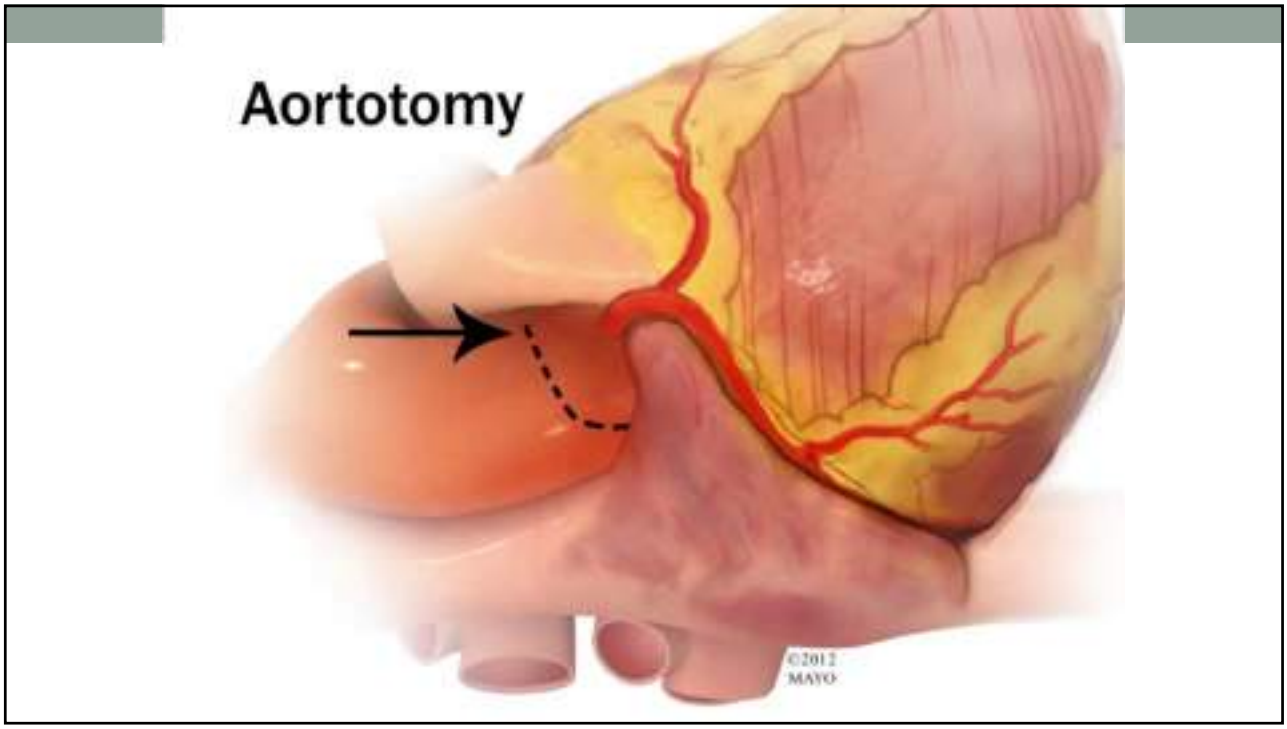
Aortotomy
©2012
MAYO

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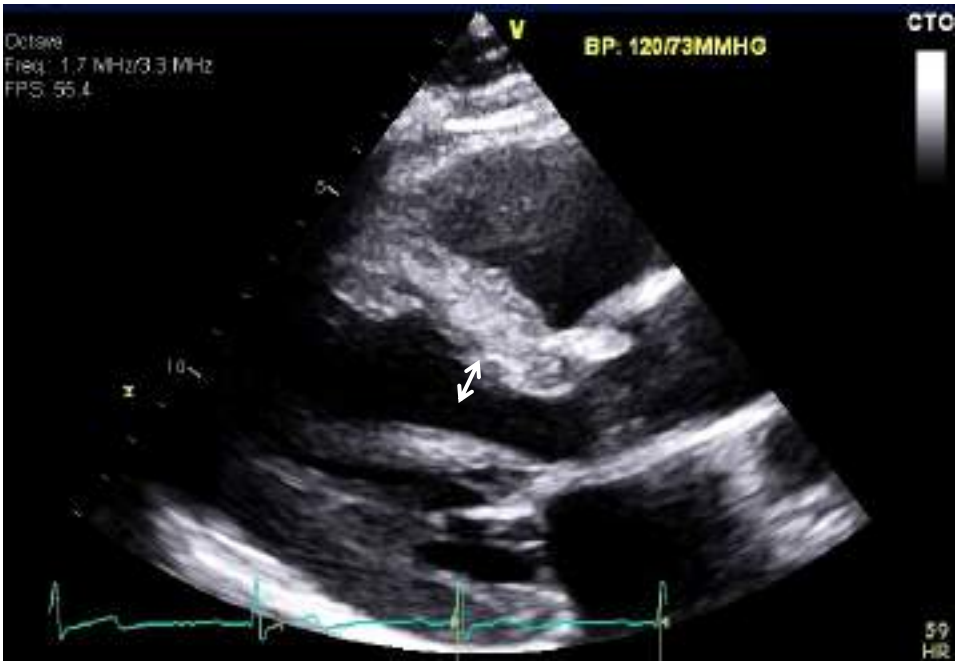
Octave
Freq: 1.7 MHz/3.3 MHz
FPS: 55.4
V
BP: 120/73MMHG
CTO
59
HR

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