

# Severe Aortic Valve Disease – TAVR in 4 Ages and Etiologies

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- No disclosures



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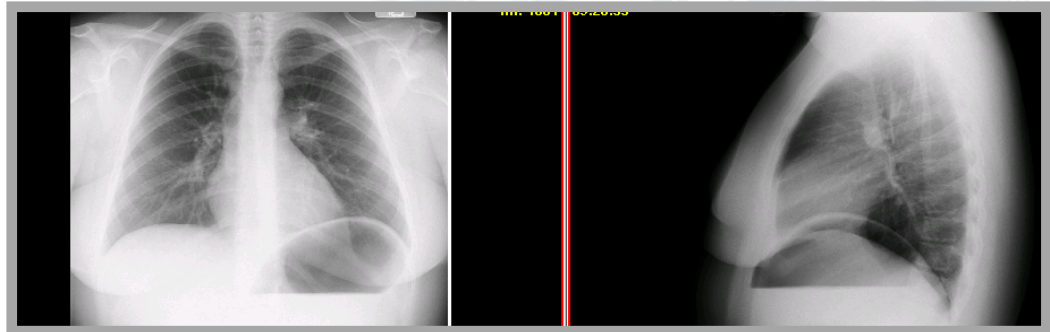
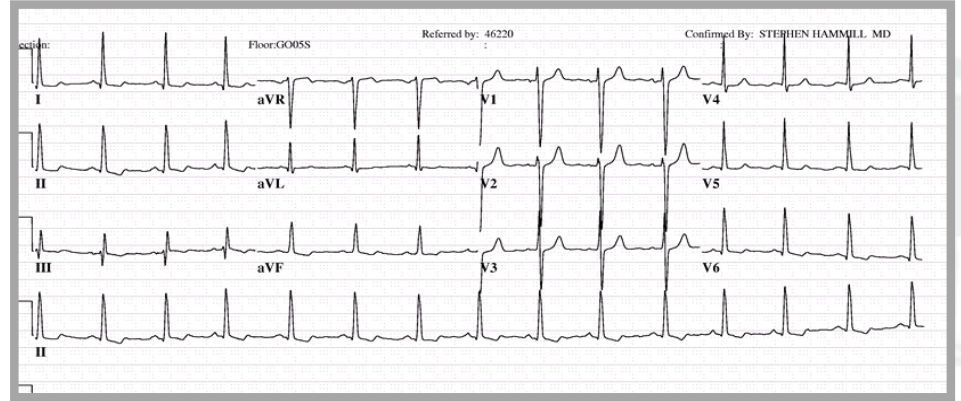
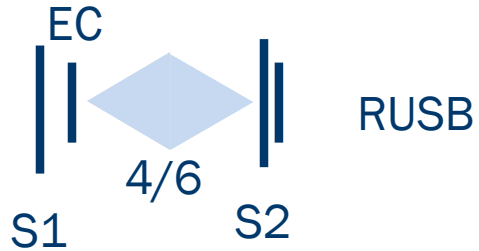
# Case 1

- 22 y/o woman presents with aortic stenosis. She was born with a heart murmur and had a valvotomy at 12 y/o. She has retrospectively had mild Class II symptoms of shortness of breath. She was recently been married and now wants to have a child.

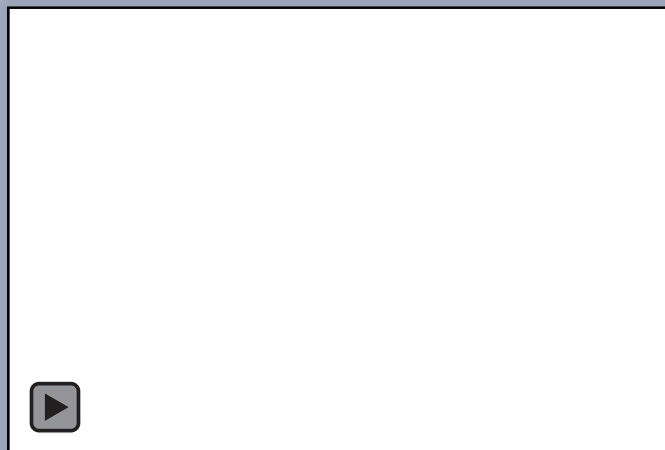
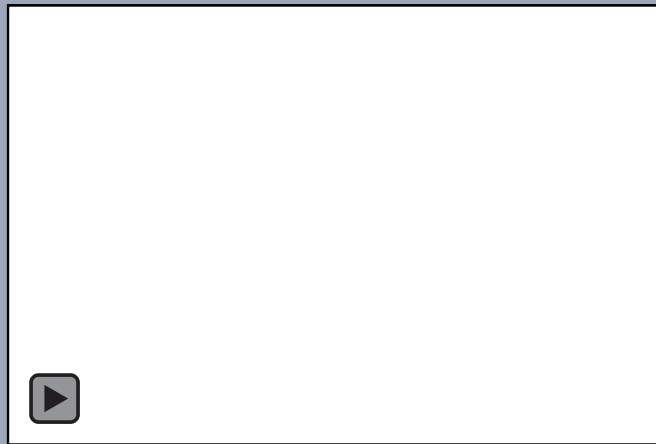


# Case 1

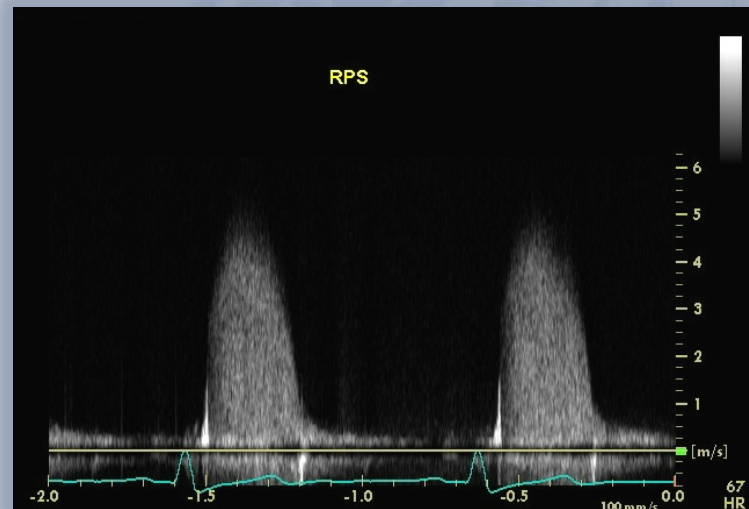
Carotid – no parvus 3+ tardus  
Thrill suprasternal notch







Bicuspid valve  
LVO diameter 2.0 cm  
Mean gradient 58 mmHg  
AVA 0.5 cm<sup>2</sup>



# Case 1

- Would you let her get pregnant
- Any further testing?
- Any intervention?



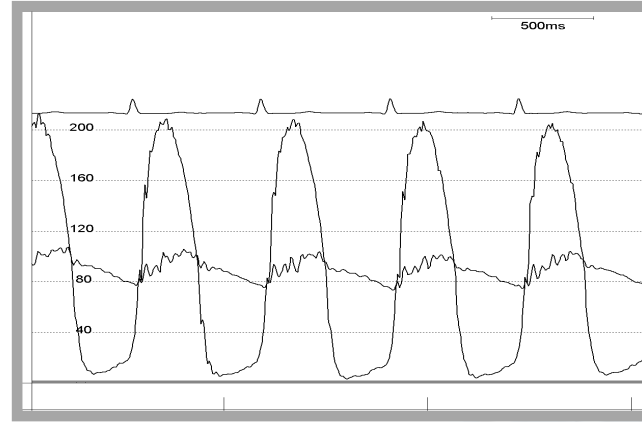
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# Case 1

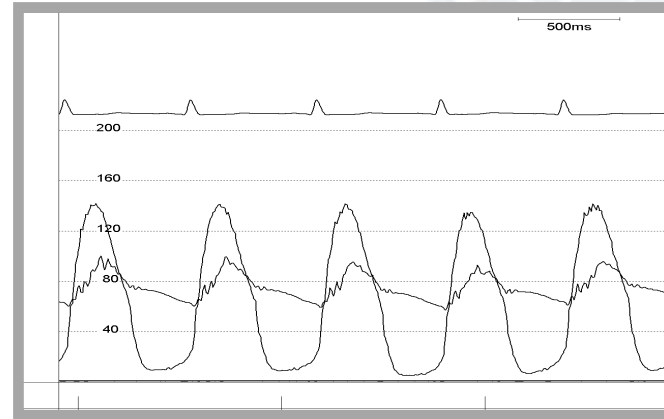
- TMET
  - Went 4.5 minutes (45% FAC)
  - Developed fatigue and SOB
  - HR 88 to 166
  - BP 104/88 to 120/82
  - 1 mm ST depression



AV gradient  
Pre  
130 mmHg



AV gradient  
Pre  
40 mmHg



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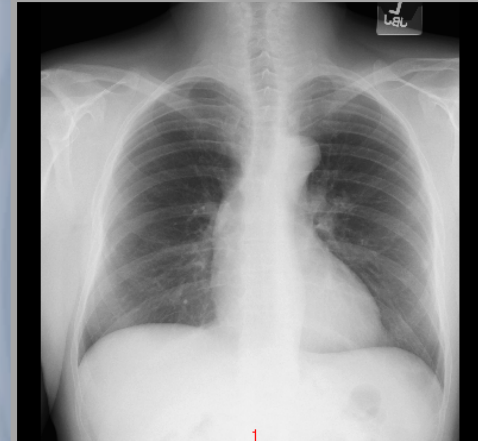
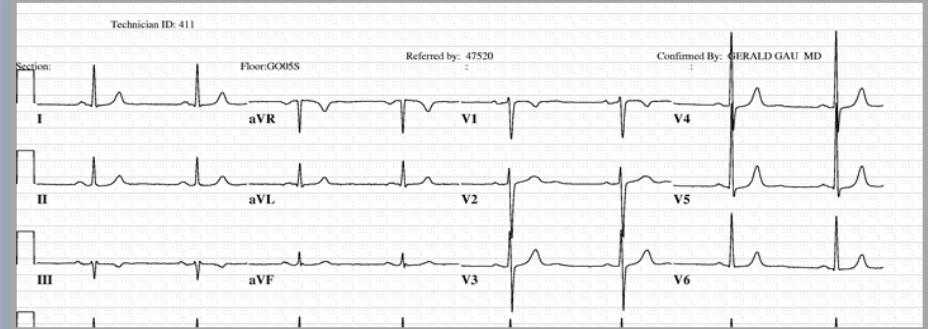
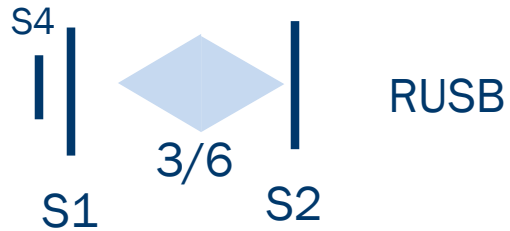
## Case 2

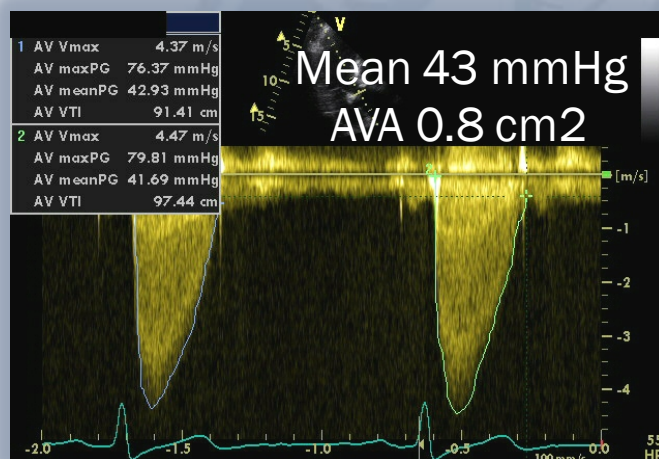
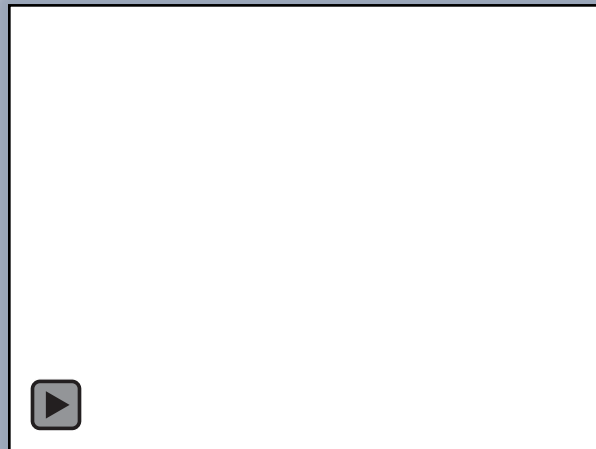
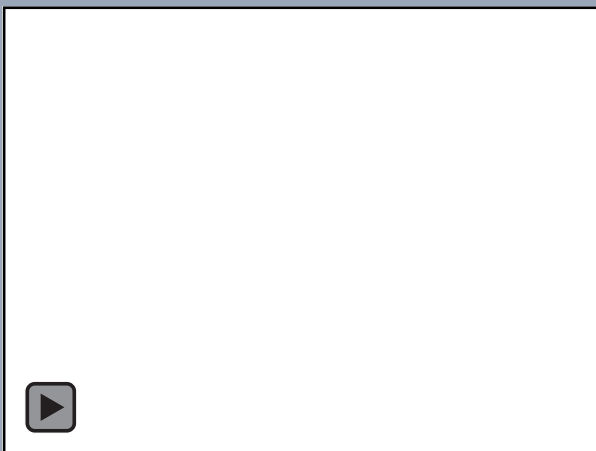
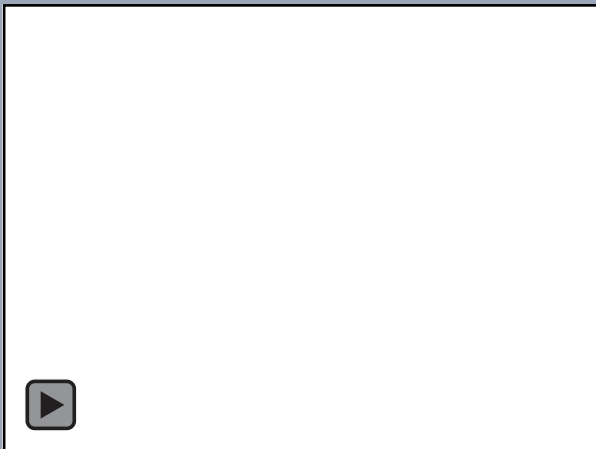
- 55 y/o man – active paramedic – presents with DOE x 6 months
- No prior cardiac hx – brother has heart murmur
- Comes for evaluation of new heart murmur



# Case 2

Carotid – 2+ parvus 4+ tardus  
LV sustained





# Case 2

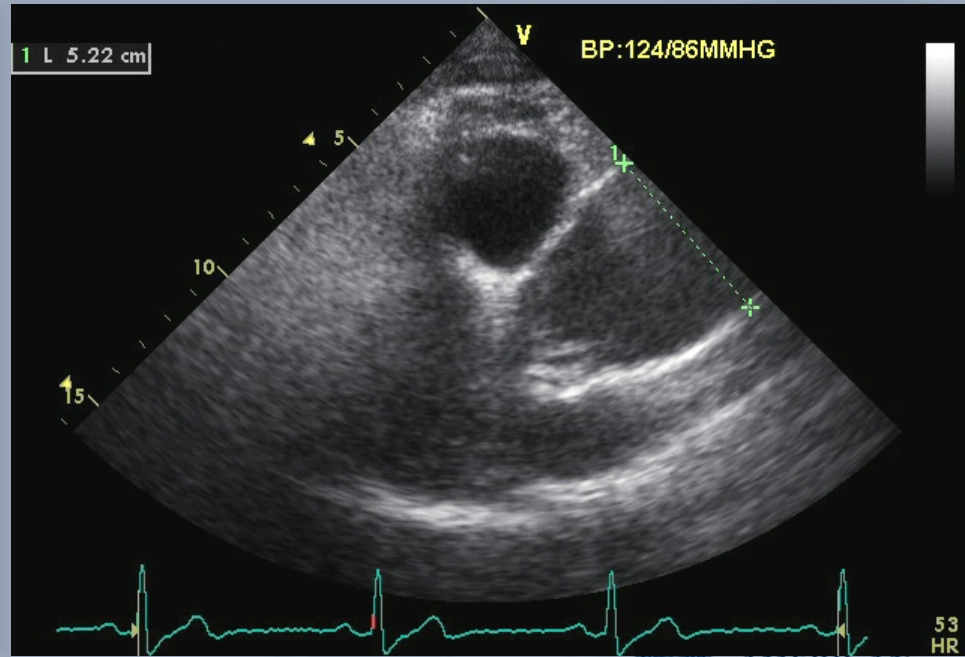
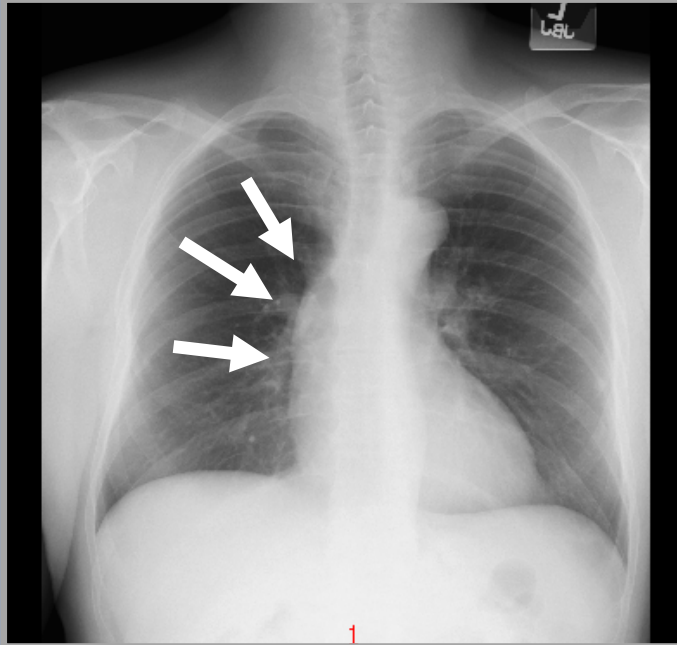
- Any further testing?
- Any intervention?



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# Case 2



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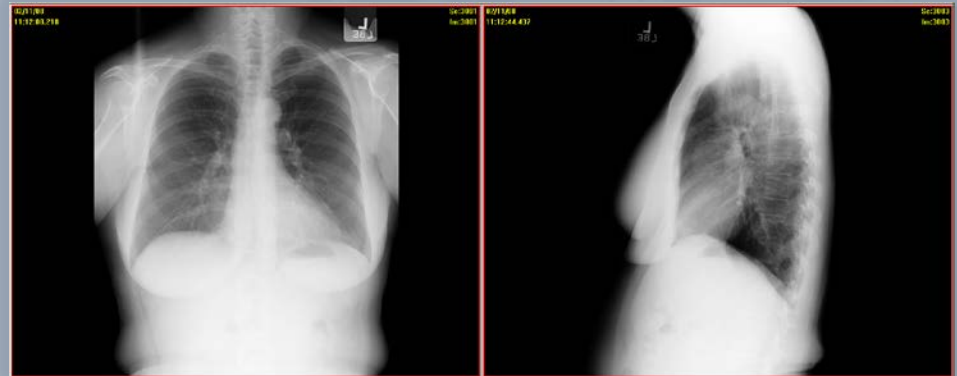
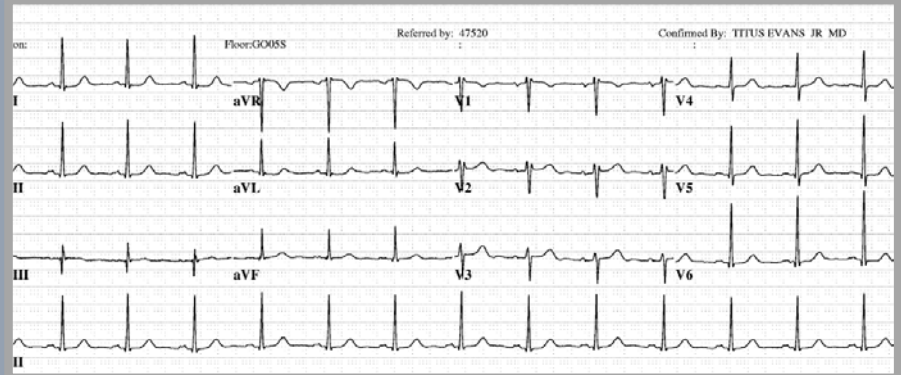
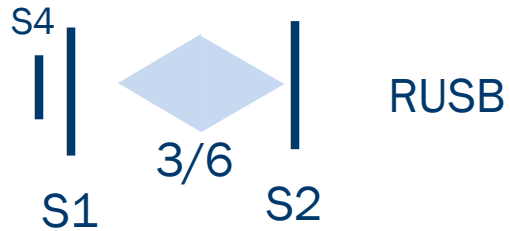
## Case 3

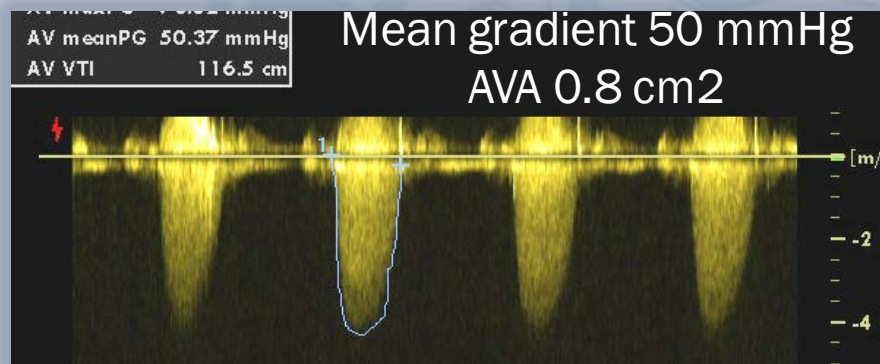
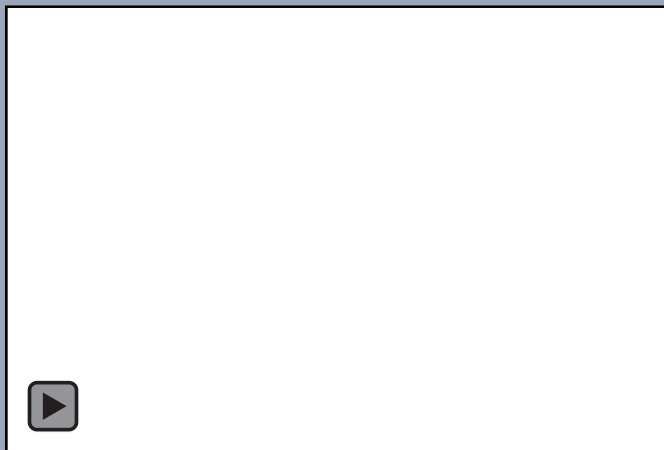
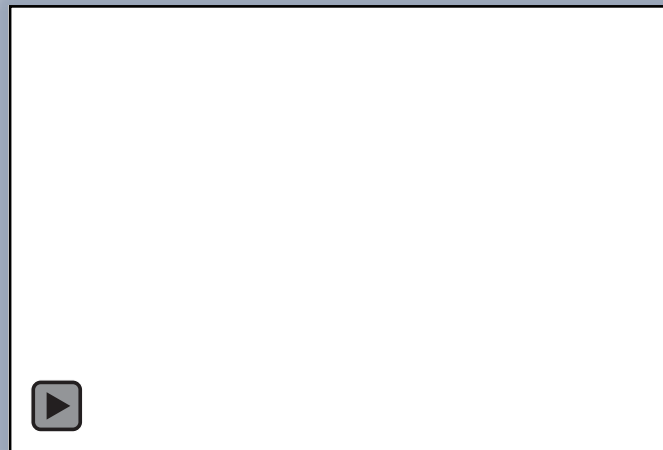
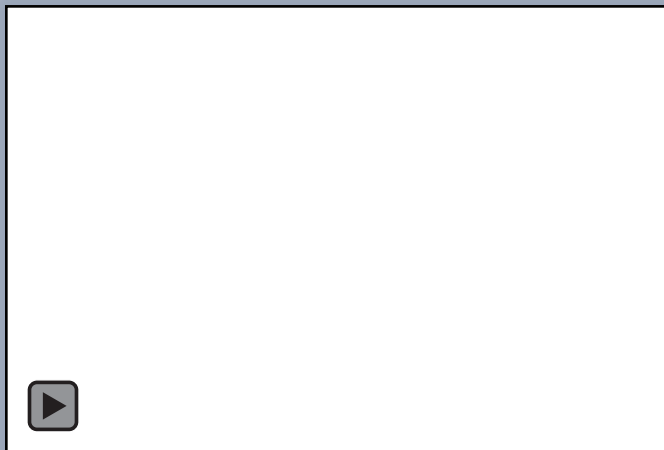
- 73 y/o PhD attorney– still active teaching
  - Jogs 2 miles per day
  - Followed for heart murmur x 10 years
- Mild HTN on calcium blocker – no other problem
- Remote history RF as teenager
- STS risk score 2.8



# Case 3

Carotid – 3+ parvus 3+ tardus  
LV sustained





# Case 3

- Any further testing?
- Any intervention?



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# VO2 22.2 ml.kg.m

## 98% FAC

**BP Response:** Rest: 114 / 80 **Peak:** 120 / 60 **3-minutes Post:** 128 / 62 **Peak DP:** 19200

**Reason for Termination:** 1) Symptom limited

**Symptoms:** 1) Dyspnea 2) Fatigue 3) CNS changes 4) Typical angina

**Abnormal Signs:** 1) PAC LT 5/min 2) ST depression GT or equal to 2mm

**Exercise ECG:** Positive

**Ischemic HR:** 160

**Ischemic Phase:** Exercise

**Ischemic Time:** 8.5 **Minutes**

**Number Leads Positive:** 6

**Maximum ST Deviation:** -2.0 **mm**

**Time of Resolution:** 2.0 **Minutes Post**

**Chest Pain Index:** 1

**Peak VO2:** 22.2 **mL/kg/min**

**Peak VO2 Predicted:** 98 **%**

**Actual METS:** 6.3

**Peak RER:** 1.36

**VO2 Rise:** Abnormal

**O2 pulse rise:** Abnormal

**Peak Ventilation:** 59.4 **L/min**

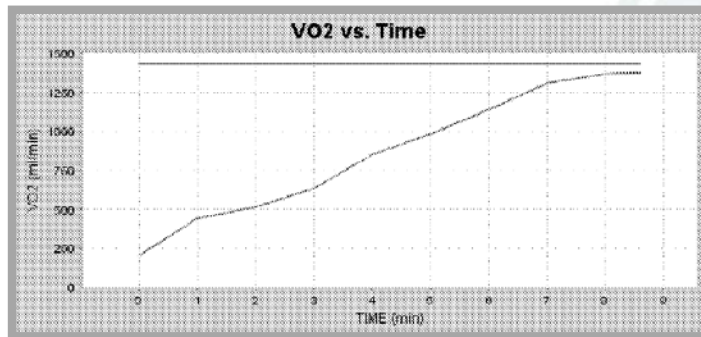
**Breathing Reserve:** 35 **%**

**Breathing Efficiency:** Normal

**VE/VO2 Nadir:** 29

**O2 Saturation:** Normal

**Anaerobic Threshold:** 981 **mL/min = 70 % peak VO2**



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# Case 4

- 96 y/o man – severe heart failure and AS
  - Healthy farmer until 6 years ago
    - Chest pain – severe CAD – 3V CABG
    - Long complicated postop course
      - ARF, respiratory support, CVA
  - Now in nursing home
    - Never recovered





# Case 4

- 96 y/o man – severe heart failure and AS
  - Progressive DOE 6 months – now in Class IV CHF
  - Sent to hospital from nursing home
  - Multiple daughters and sons gathered around
  - Wheel chair bound
    - Needs help with bathing and ambulating
  - STS score 13.8



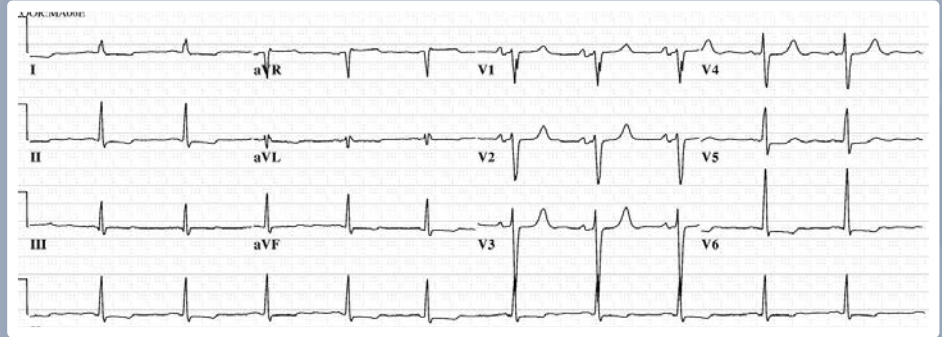
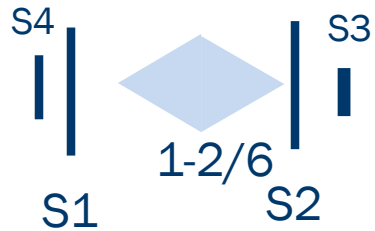


# Case 4

BP 90/60

Carotid - 4+ parvus 4+ tardus

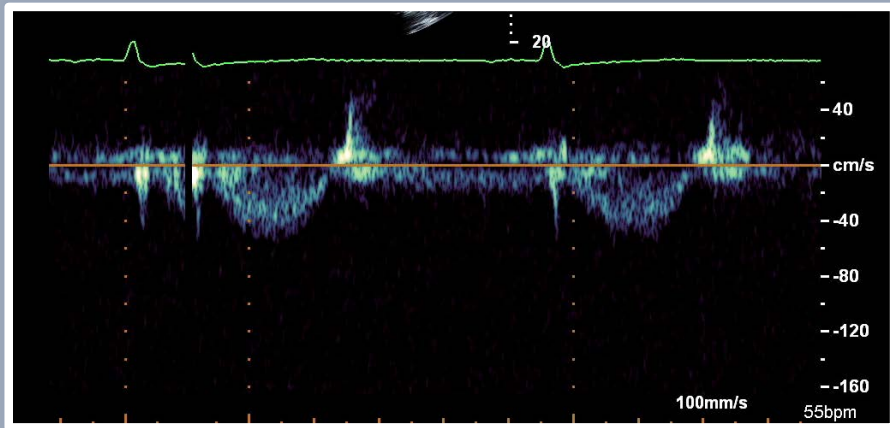
Rales both lung fields



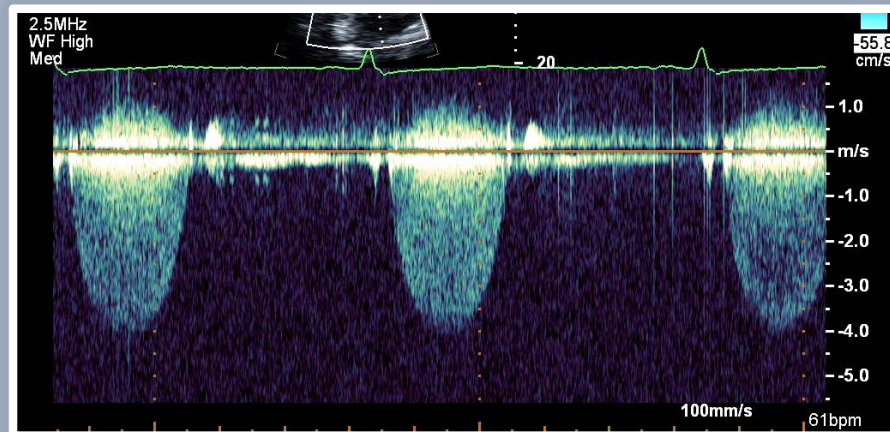
**Dilated LV**  
**Multiple RWMA**  
**EF 30%**  
**Calcified AV**



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**LVO TVI 16**  
**AV Mean gradient 48 mmHg**  
**LVO diameter 2.1 cm**



**AVA 0.7 cm<sup>2</sup>**



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# Case 4

- Any further testing?
- Any intervention?



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