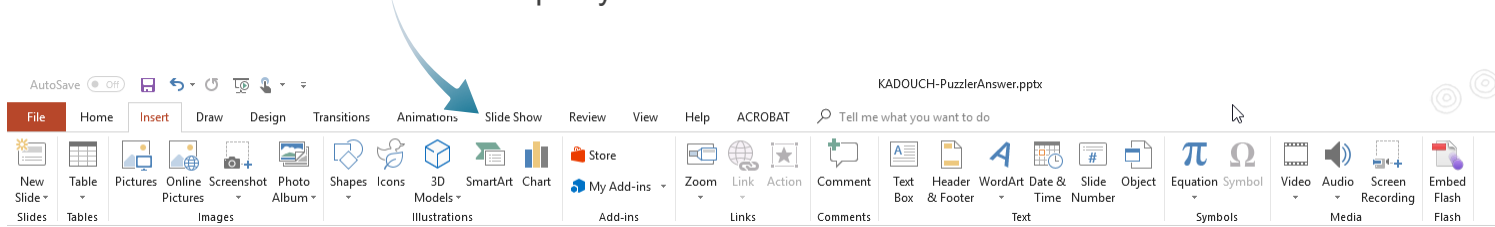




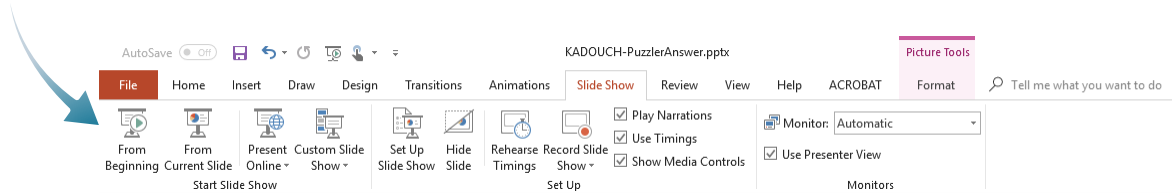
# ECG Underwriting Puzzler

# To obtain best results...

- Select “Slide Show” from the ribbon at the top of your PowerPoint screen



- Select “From Beginning” on the Slide Show screen



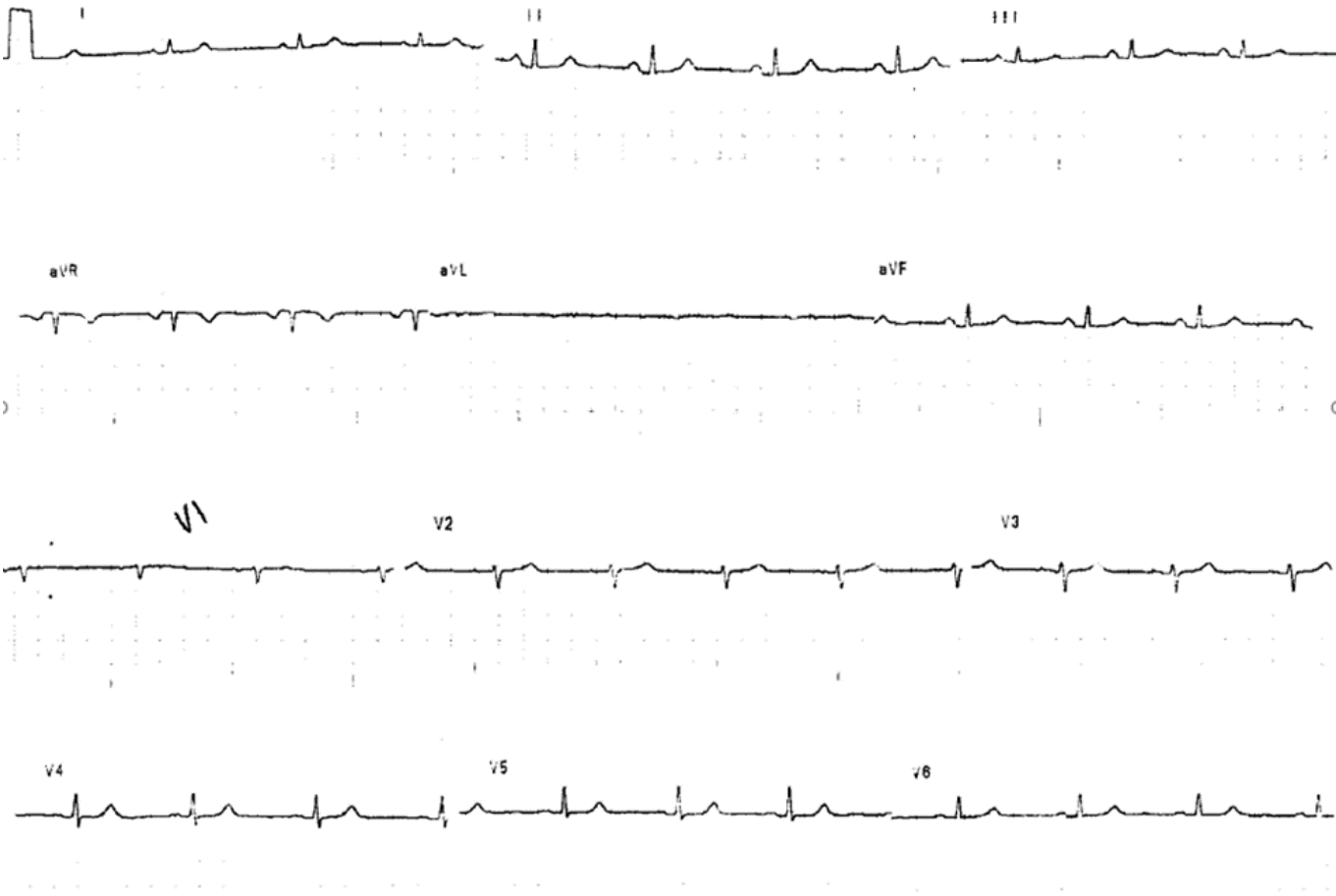
- Slowly click through the presentation
- Enjoy the animation

## Clinical context

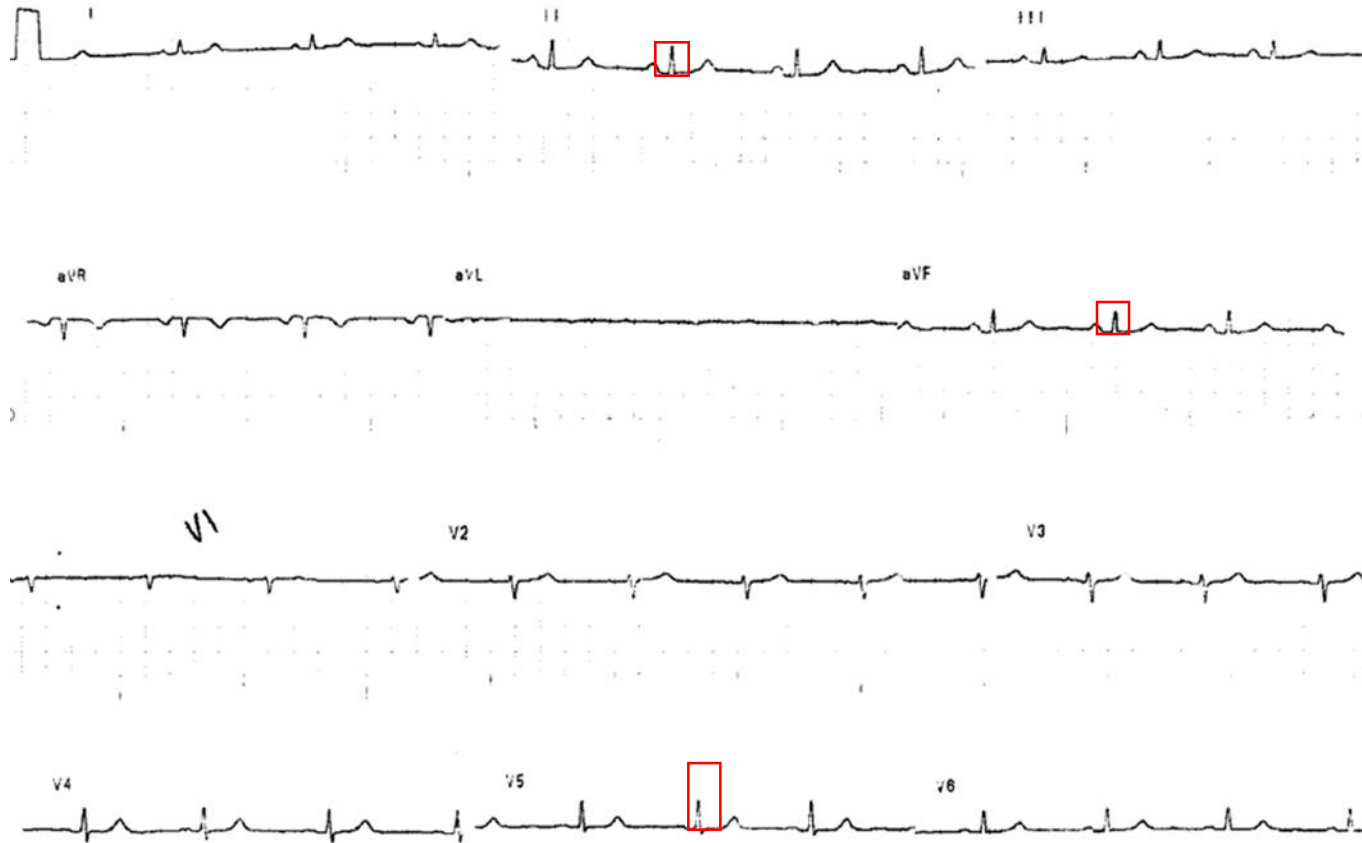
---

- A 65 year-old female applied for life insurance.
- She disclosed a history of chronic bronchitis since childhood. She was prescribed prednisone and Levosin.
- Her BMI was 22.
- From the records her most recent SpO2 was 93%, it had been as low as 90% in the past.
- No pulmonary function testing was included.

# What is the major abnormality on this ECG ?



# Low voltage on the ECG



It is a poor copy, but you can just make out the dots where the darker lines cross. And the 10 mm Standard precedes lead I. Taking a box that is ~ 5 X 5 mm, one can see that all of the limb leads are under 5 mm in height. And all of the chest leads are less than 10 mm in height. This qualifies as abnormal **low voltage**.

# Conclusion

---

- Low voltage on an ECG is nonspecific – Some possible causes are:
  - Myocardial disease, especially infiltrative disease such as amyloidosis
  - Pericardial effusion (can also cause electrical alternans)
  - Severe hypothyroidism
  - Obesity
  - Anasarca (generalized swelling)
  - Lung diseases such as pneumothorax, Chronic Obstructive Pulmonary Disease, Emphysema, etc.
  - Seems most likely related to chronic lung disease in this case and asking for results of pulmonary function testing would be prudent