EKG of the week 9/27/10: 14 yo female presents with 3 months of intermittent palpitations.

1. What is your interpretation of her baseline ECG (figure 1)? (1 point)
2. She presents to ED with following rhythm strip (figure 2), she feels unwell and vagal maneuvers fail to terminater her arrhythmia. How does adenosine work (i.e. what is its mechanism of action)?
3. Based on her ECG, what are the two most likely diagnoses to explain her reentrant SVT?

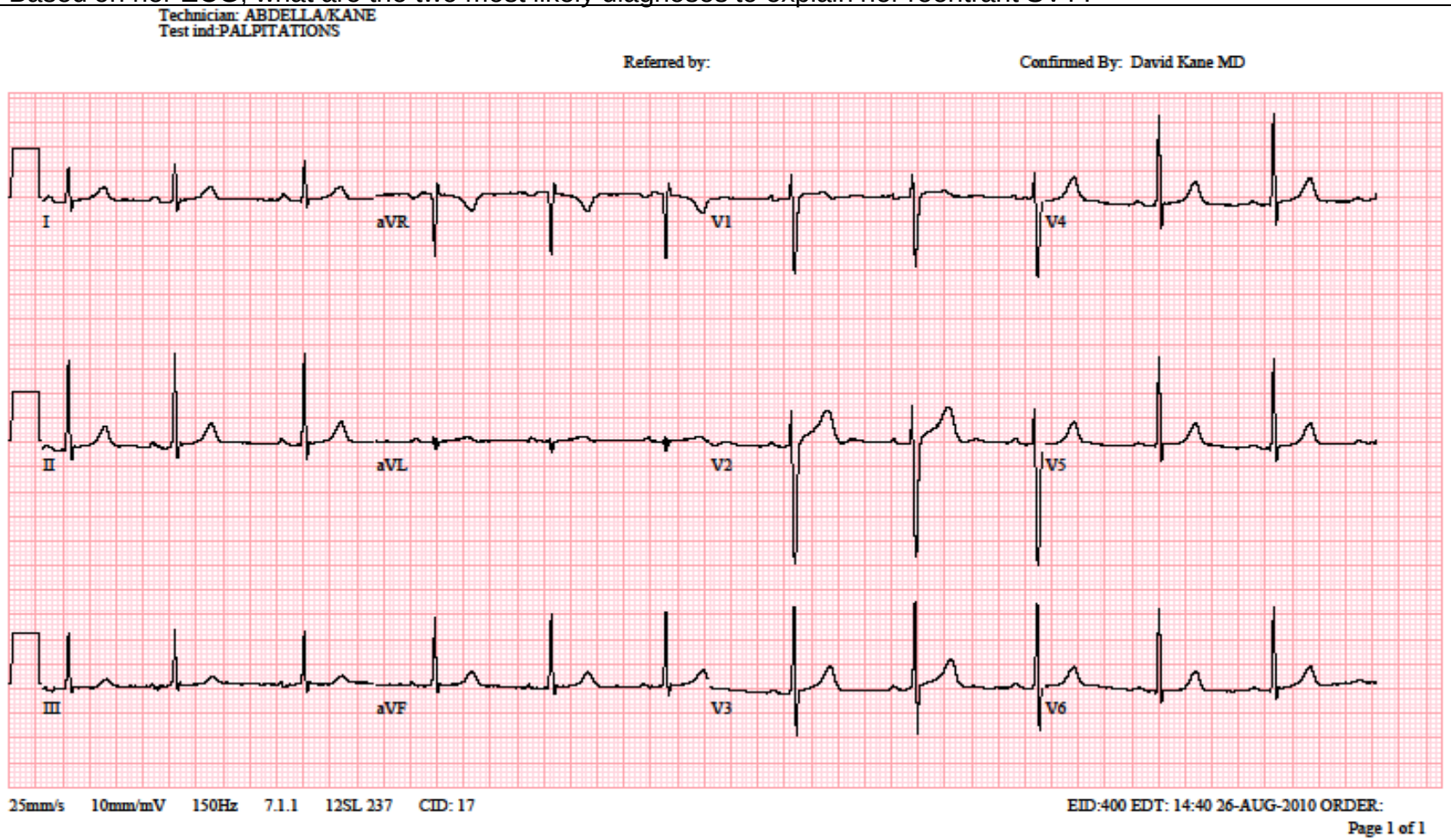
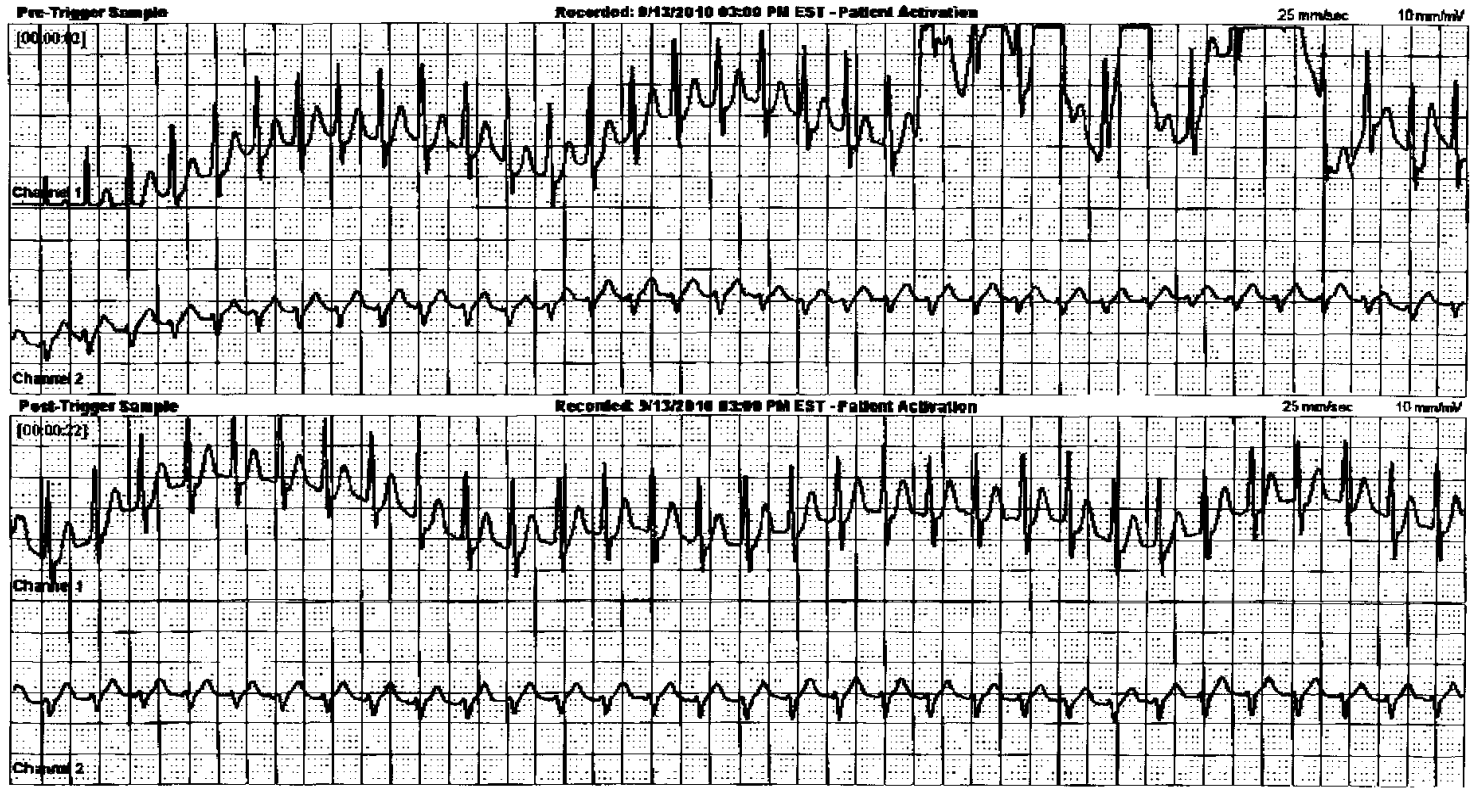


Figure 1. Baseline ECG.

Figure 2. ED Rhythm Strip



EKG of the Week 9/27/10 Answers

1. What is your interpretation of her baseline ECG? (1 point)
   - Normal. Specifically, there is no evidence of preexcitation consistent with WPW.

2. She presents to ED with following rhythm strip, she feels unwell and vagal maneuvers fail to terminater her arrhythmia. How does adenosine work (i.e. what is its mechanism of action)?
   - Adenosine works by transiently blocking conduction through the AV node. Therefore, in reentrant supraventricular tachycardia that involves the AV node either orthodromic (down the AV node) or antidromic (up the AV node), AV node block terminates the tachcardia by interrupting the circuit. Always remember to have your defibrillator nearby when administering adenosine, in the rare case that atrial fibrillation can be transmitted down an accessory pathway leading to ventricular fibrillation.

3. Based on her ECG, what are the two most likely diagnoses to explain her reentrant SVT?
   - Atriventricular nodal reentrant tachycardia (AVNRT) or a concealed accessory pathway (AVRT) (non-preexcited at baseline, but with a pathway that works similar to WPW that is discovered only with invasive electrophysiology testing).