24th Annual Cardiovascular Disease & Wellness Symposium

Supraventricular Tachycardia (SVT)

Saverio J. Barbera, MD

Cardiac Electrophysiologist

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Objectives for this discussion of SVT....

- Define SVT
  - Differentiate it from VT (Ventricular Tachycardia)
- Familiarize w/ differential diagnoses of various specific types of SVT
- Review the evaluation and management of a patient with SVT

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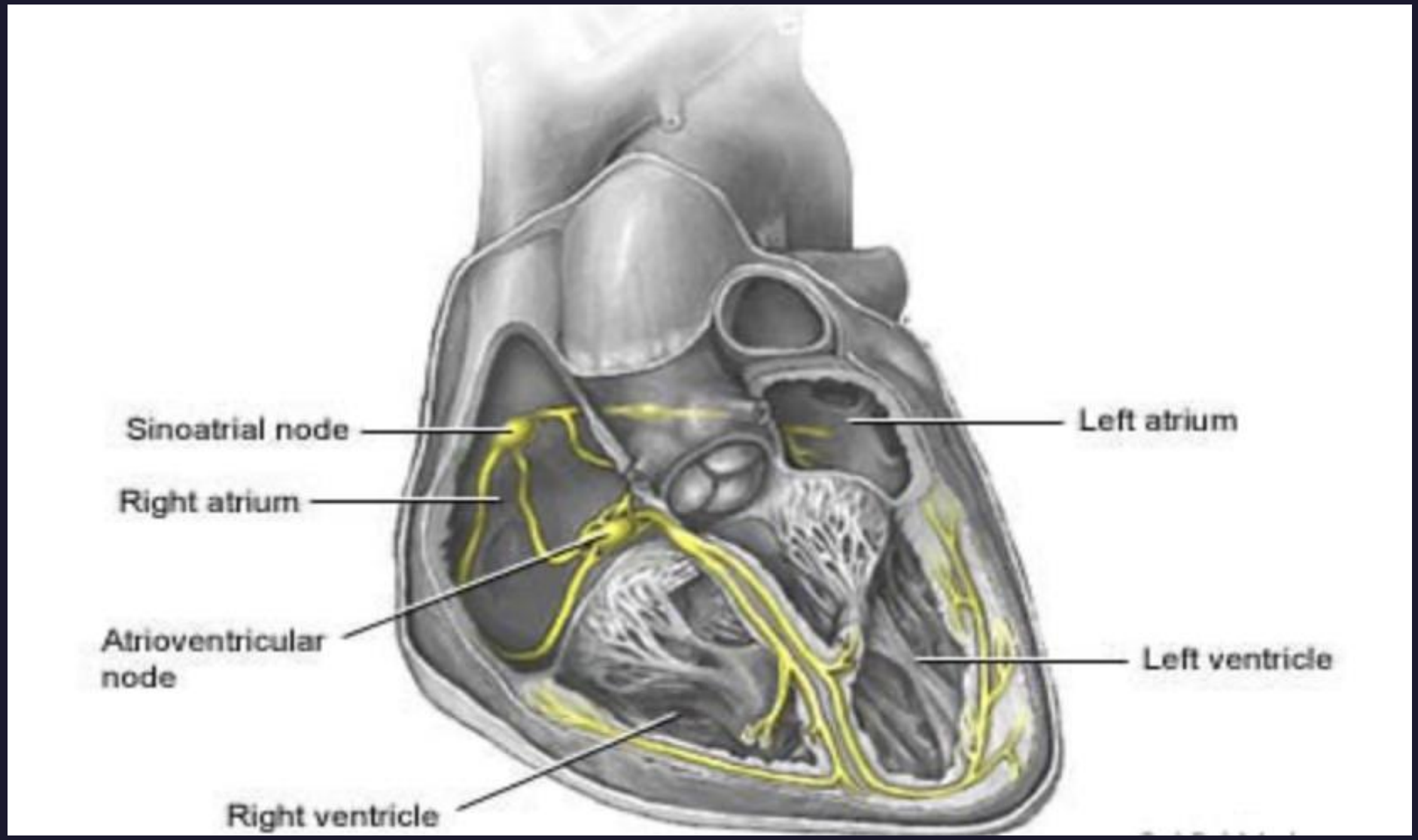
The Cardiac Conduction System



Types of Tachycardias (HR >100 bpm)

QRS < 120ms = <u>SVT</u>

Arrhythmia originates above or within the His bundle

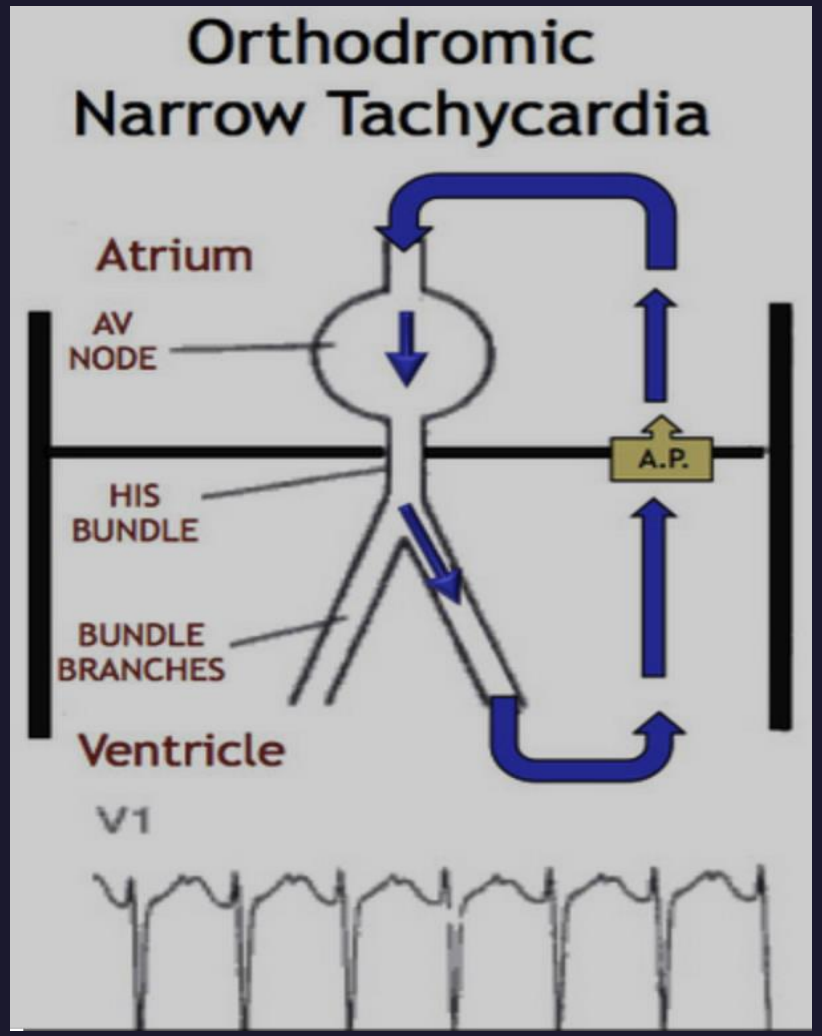
QRS > 120ms = <u>SVT or VT</u>

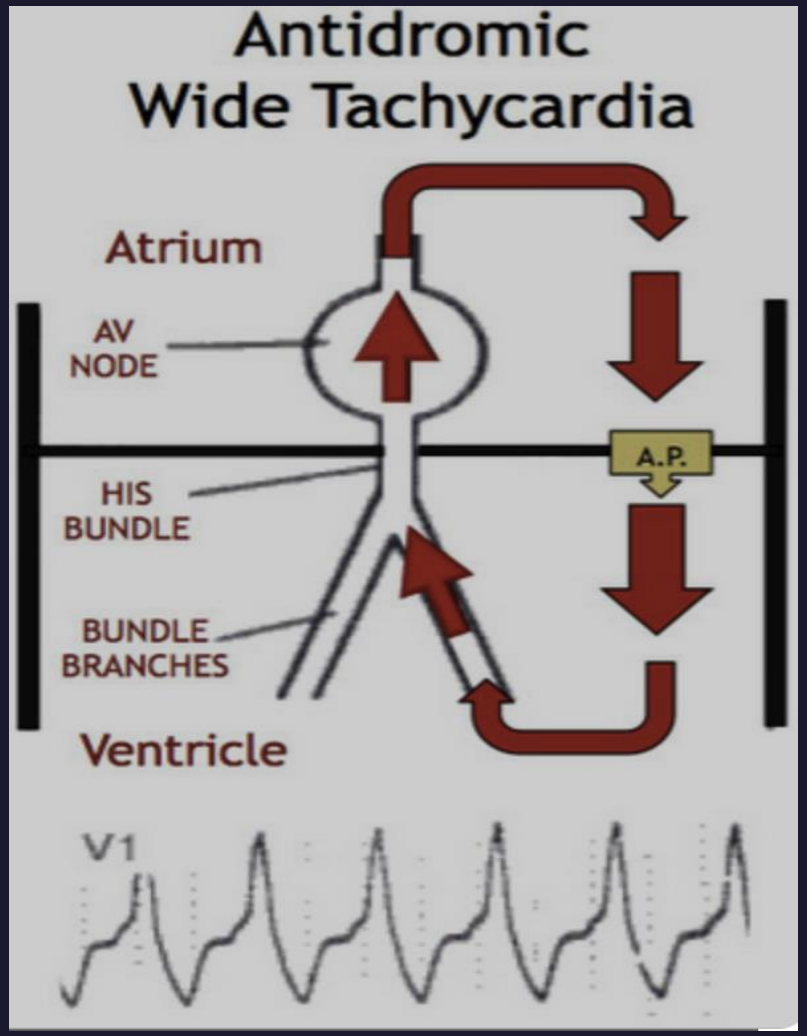
Arrhythmia originates below the His bundle = **VT**

Arrhythmia originates above or within the His bundle but conducts w/ aberrancy = **SVT***

* Exception of wide complex SVT → arrhythmia conducts directly down an accessory pathway - antidromic AVRT

Orthodromic SVT versus Antidromic SVT





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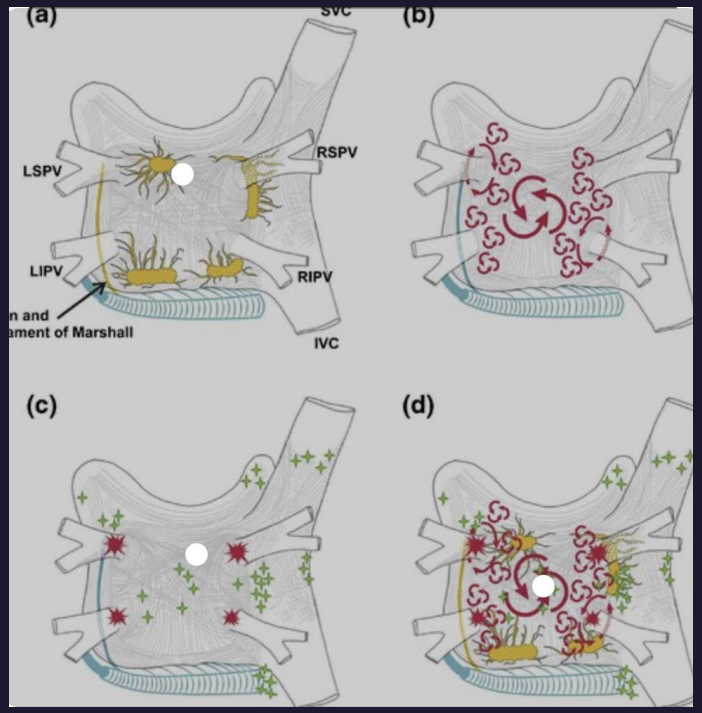
Atrial Fibrillation



- Irregular
- No P waves (esp. if fine AF) but baseline can sometimes have more undulation if AF is coarse (so called “fib-flutter”)
- With very rapid ventricular response can become more regular and more difficult to differentiate from SVT because of the regularity

Wide QRS Tachycardias….
Differentiating VT from SVT

- Fusion Beats
- Capture Beats

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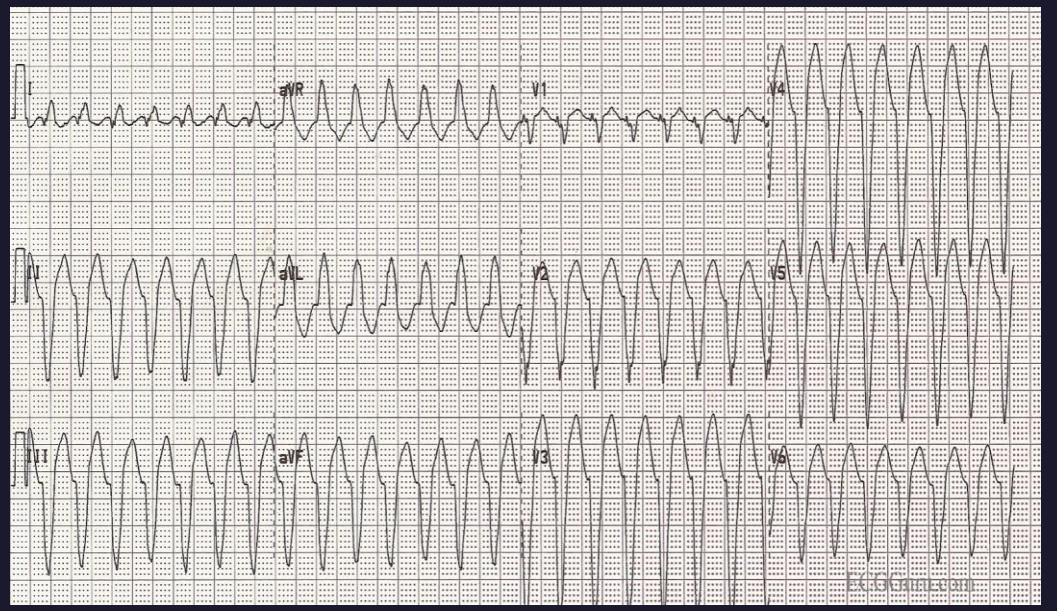
Wide QRS Tachycardias….
Differentiating VT from SVT

- aVr Criteria – Initial R wave in lead aVr = VT
- Precordial Concordance (Negative or *Positive)



* Positive precordial concordance can also represent antidromic AVRT

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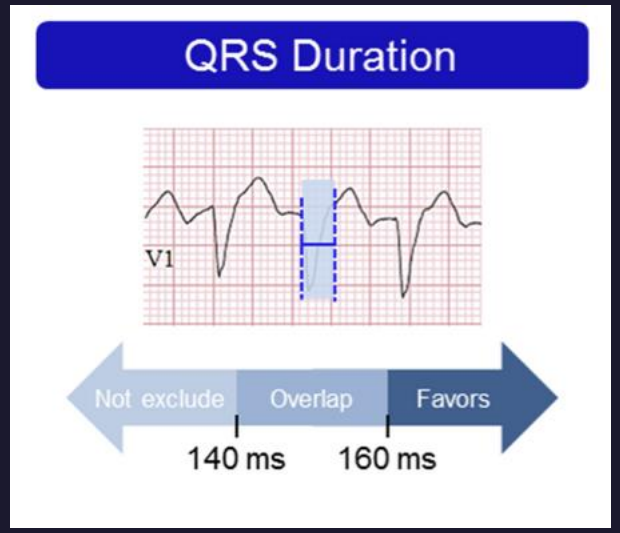
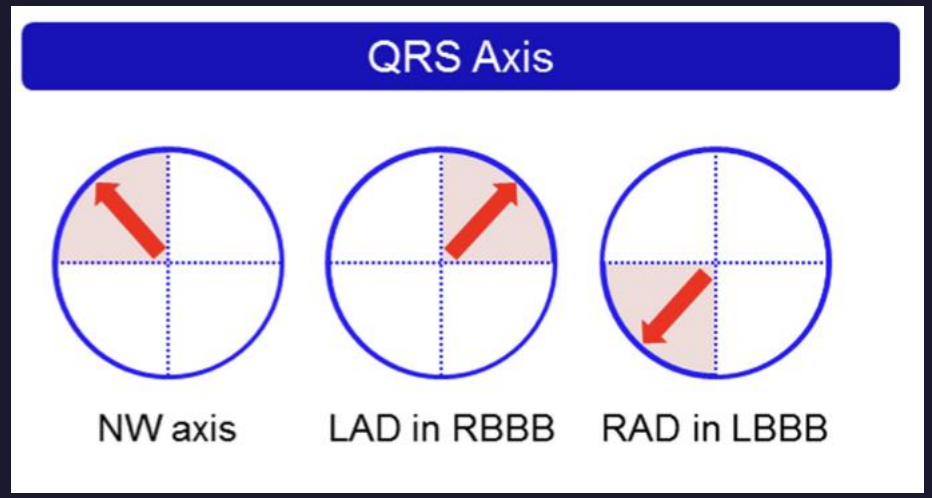
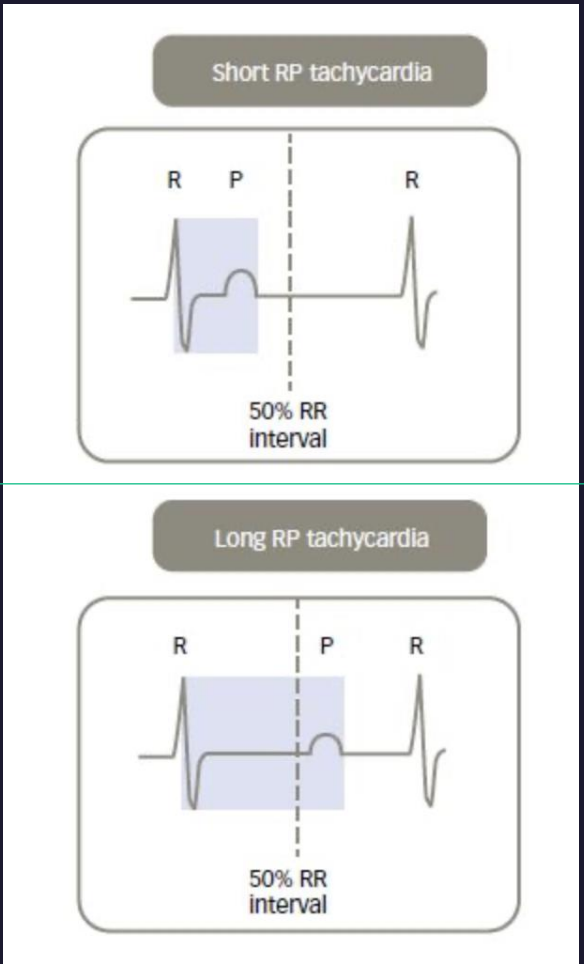
Wide QRS Tachycardias….
Differentiating VT from SVT

- QRS Duration
- Axis





Types of Regular Narrow QRS Tachycardias Measuring the RP Interval



1. Typical AVNRT
2. AVRT (orthodromic)
3. AT

1. AT
2. Atypical AVNRT
3. PJRT - AVRT (orthodromic)

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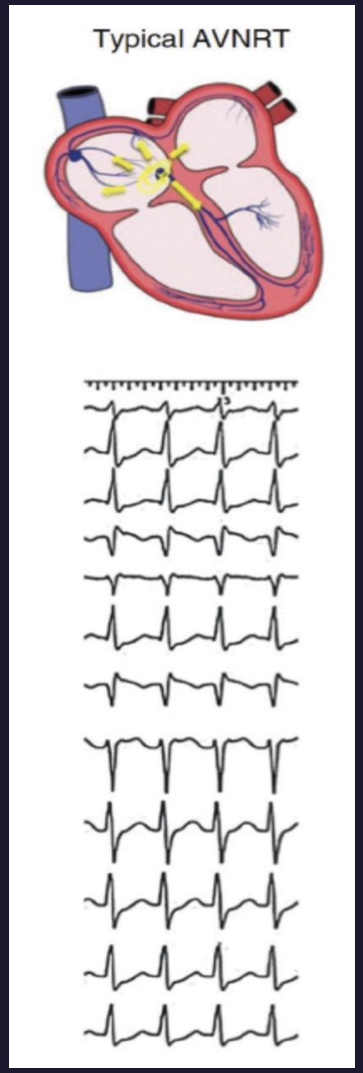
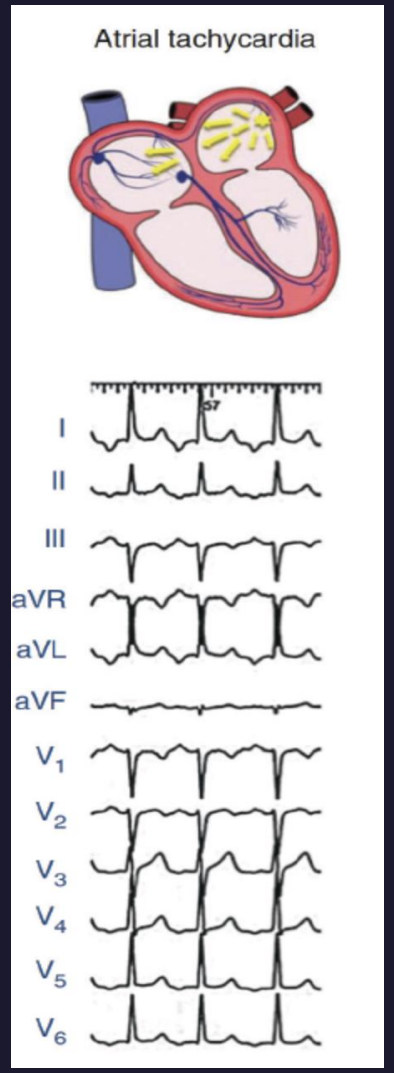
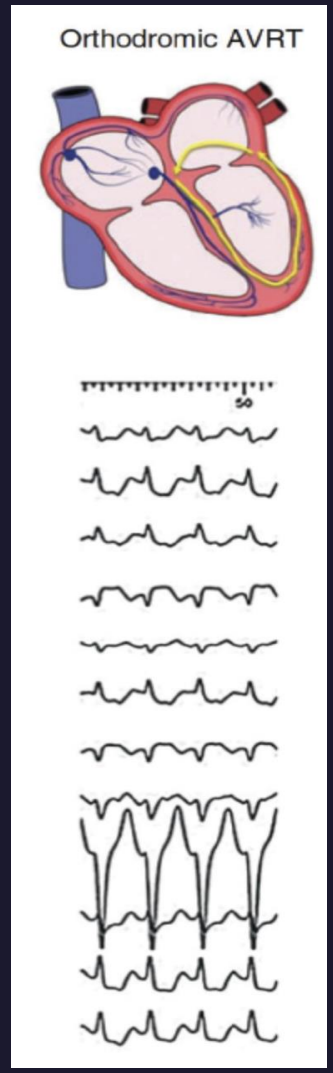
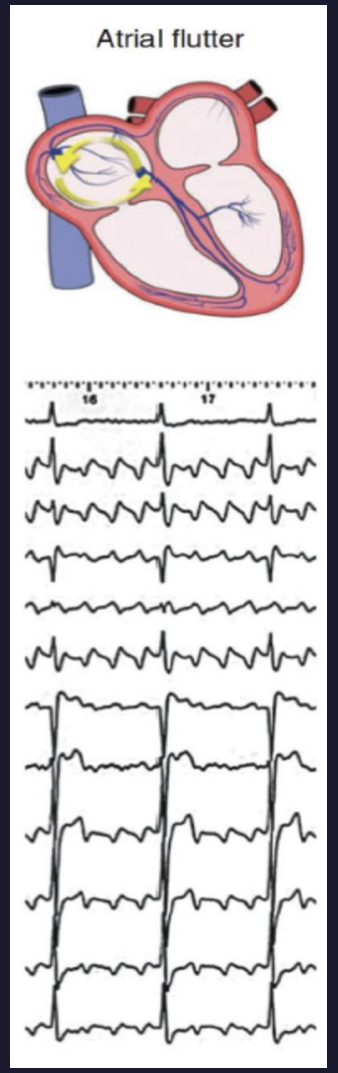
Types of Regular Narrow QRS Tachycardias

- AVNRT
- Atrial Tachycardia
- AVRT (Orthodromic)
- Atrial Flutters
- Sinus Tachycardia









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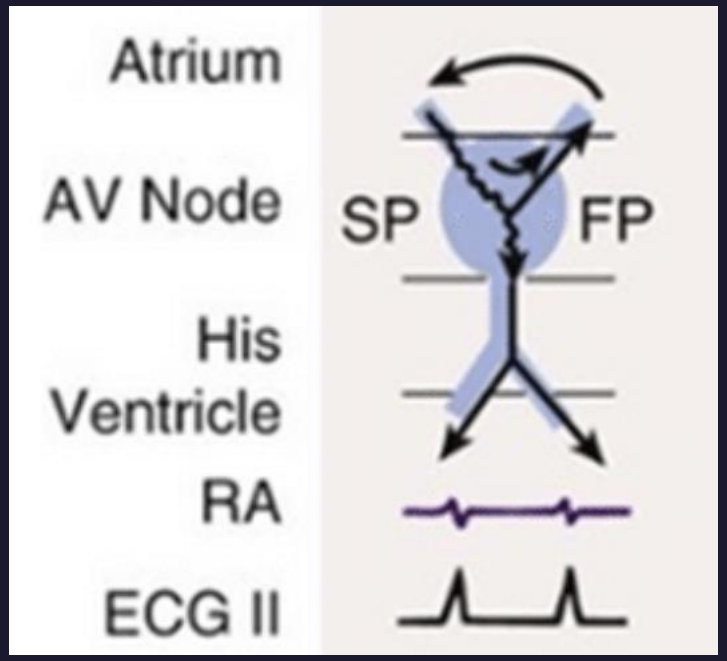
Differentiating Sinus Tachycardia from SVT

Sinus Tachycardia (ST)	SVT
Slowly initiates and terminates	Abrupt initiation and termination
Rate is generally slower (MPHR = 220 – Age)	Rate is generally on the faster side (over 200 in adults makes ST very unlikely)
Vagal maneuvers may transiently slow but not terminate	Vagal maneuvers may terminate

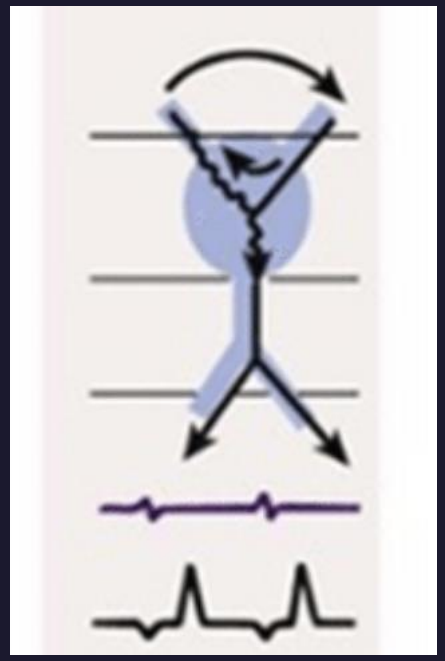
* In addition: look at P wave morphology to differentiate (sinus P is positive in Lead I & II / negative in aVr)

AVNRT (AV Node Reentrant Tachycardia)

TYPICAL

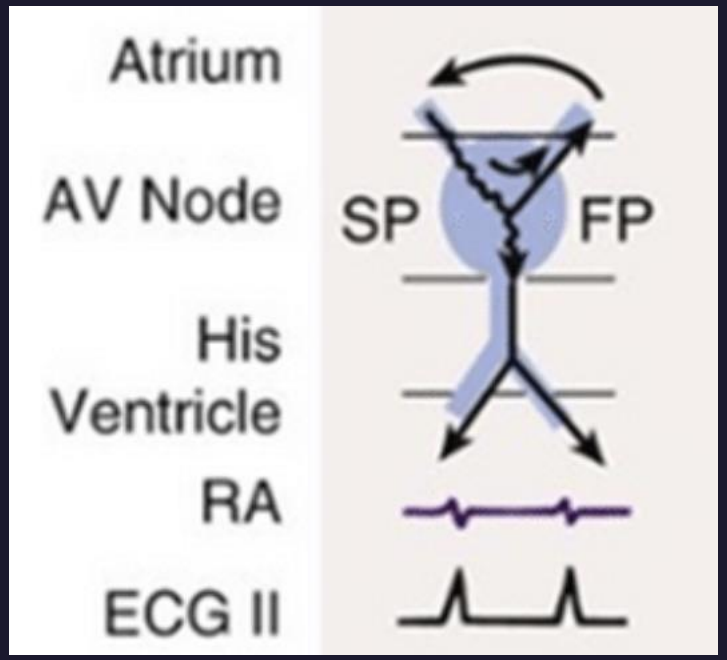


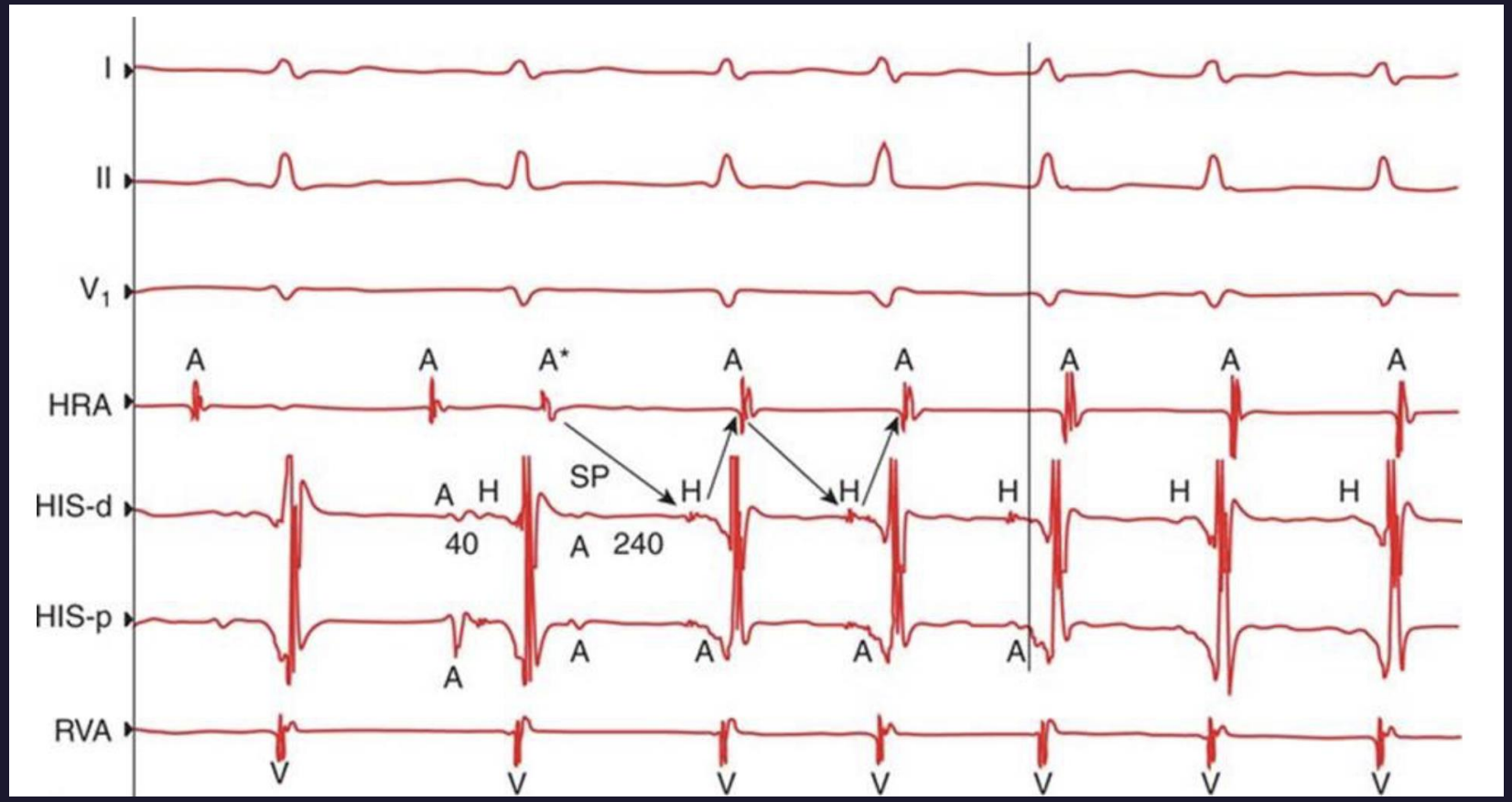
ATYPICAL



*AVNRT is the most common SVT ≃ 60%

AVNRT





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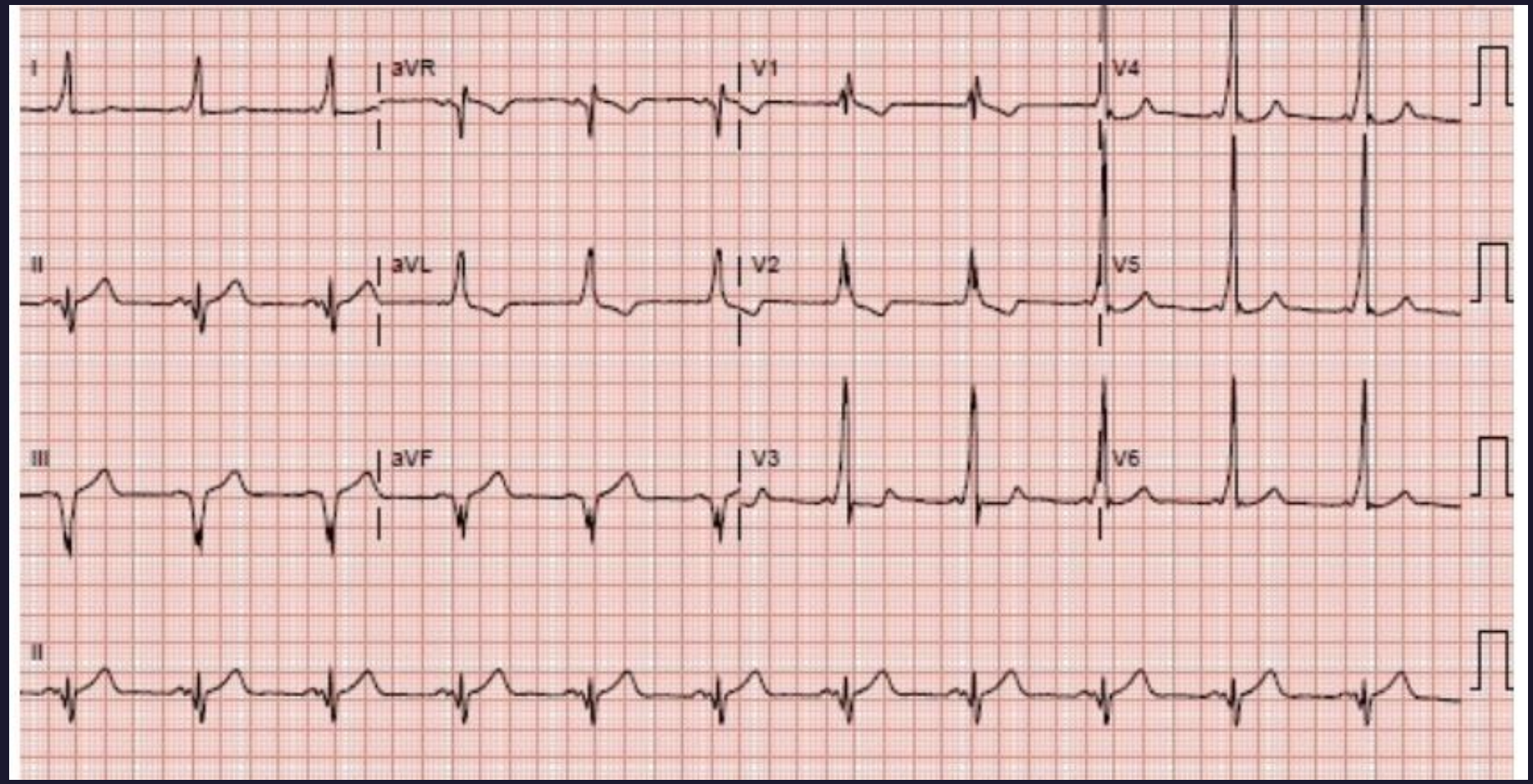
AVRT (AV Reentrant Tachycardia)
WPW (Wolf-Parkinson-White)



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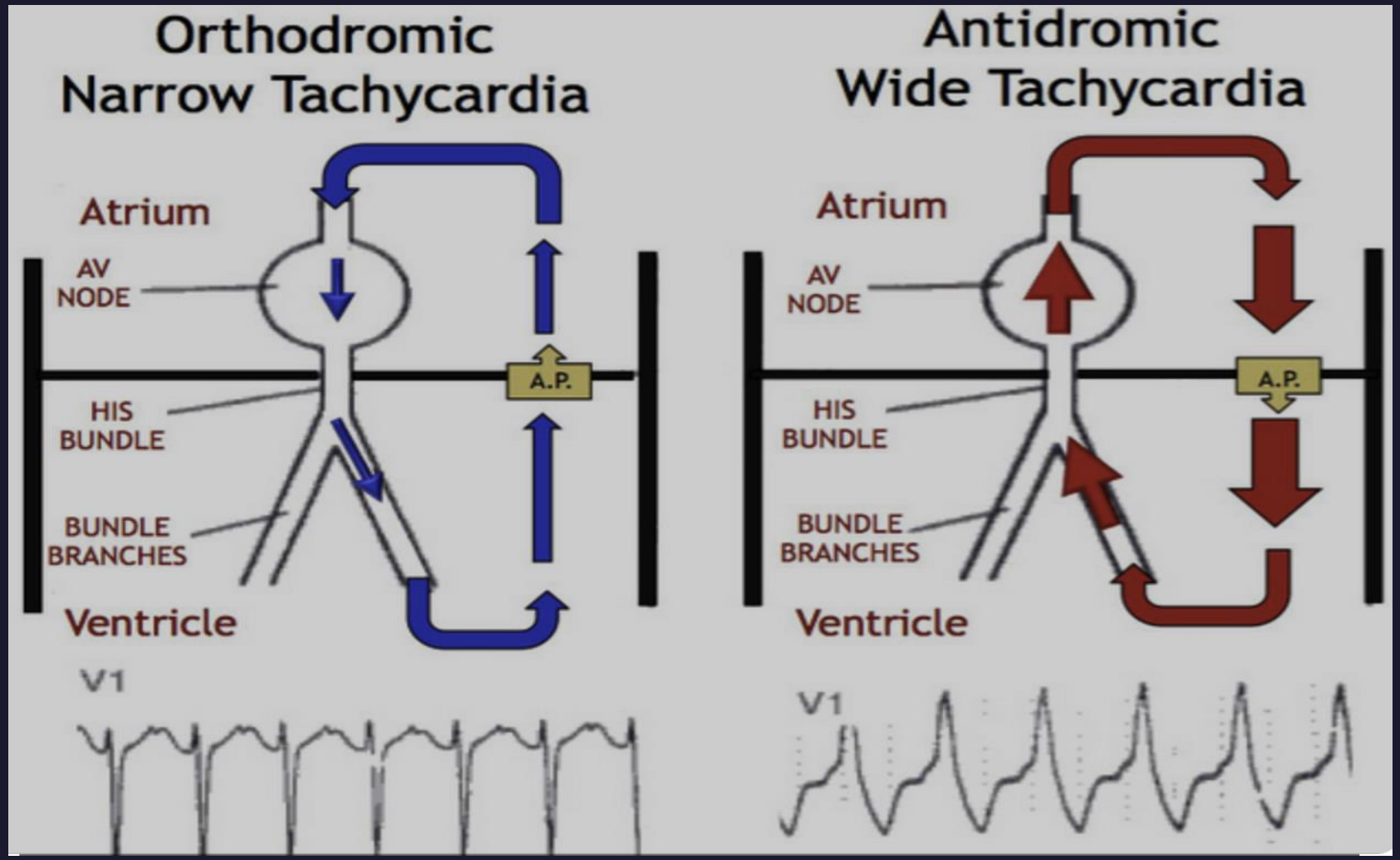
WPW Syndrome (≃30% of SVT)



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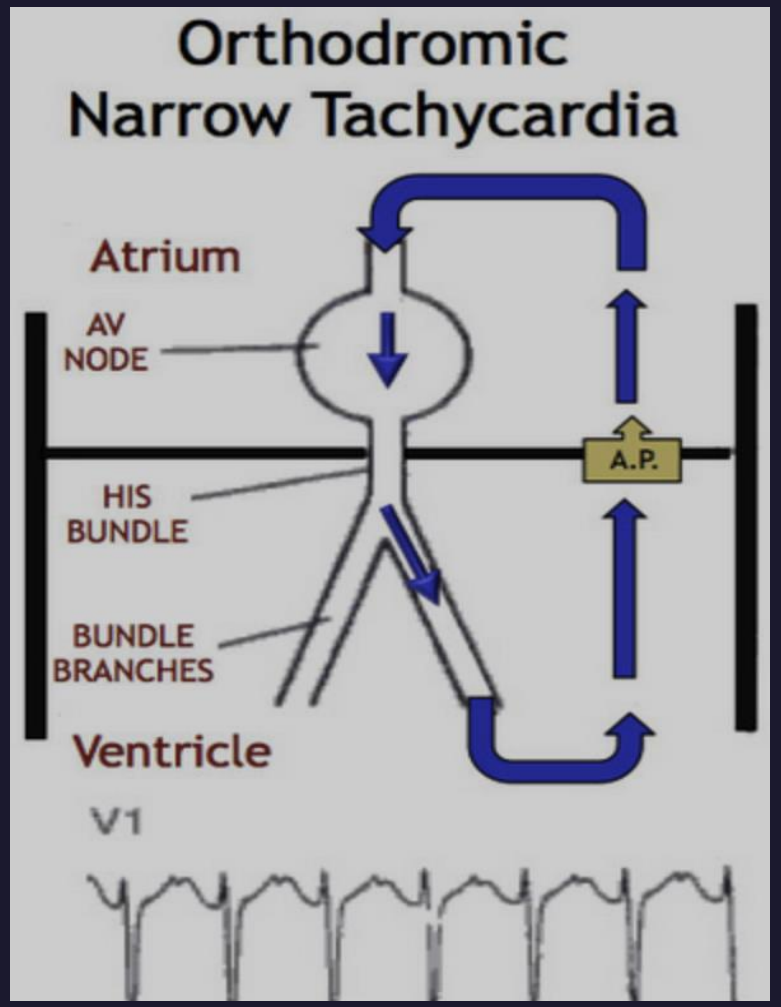
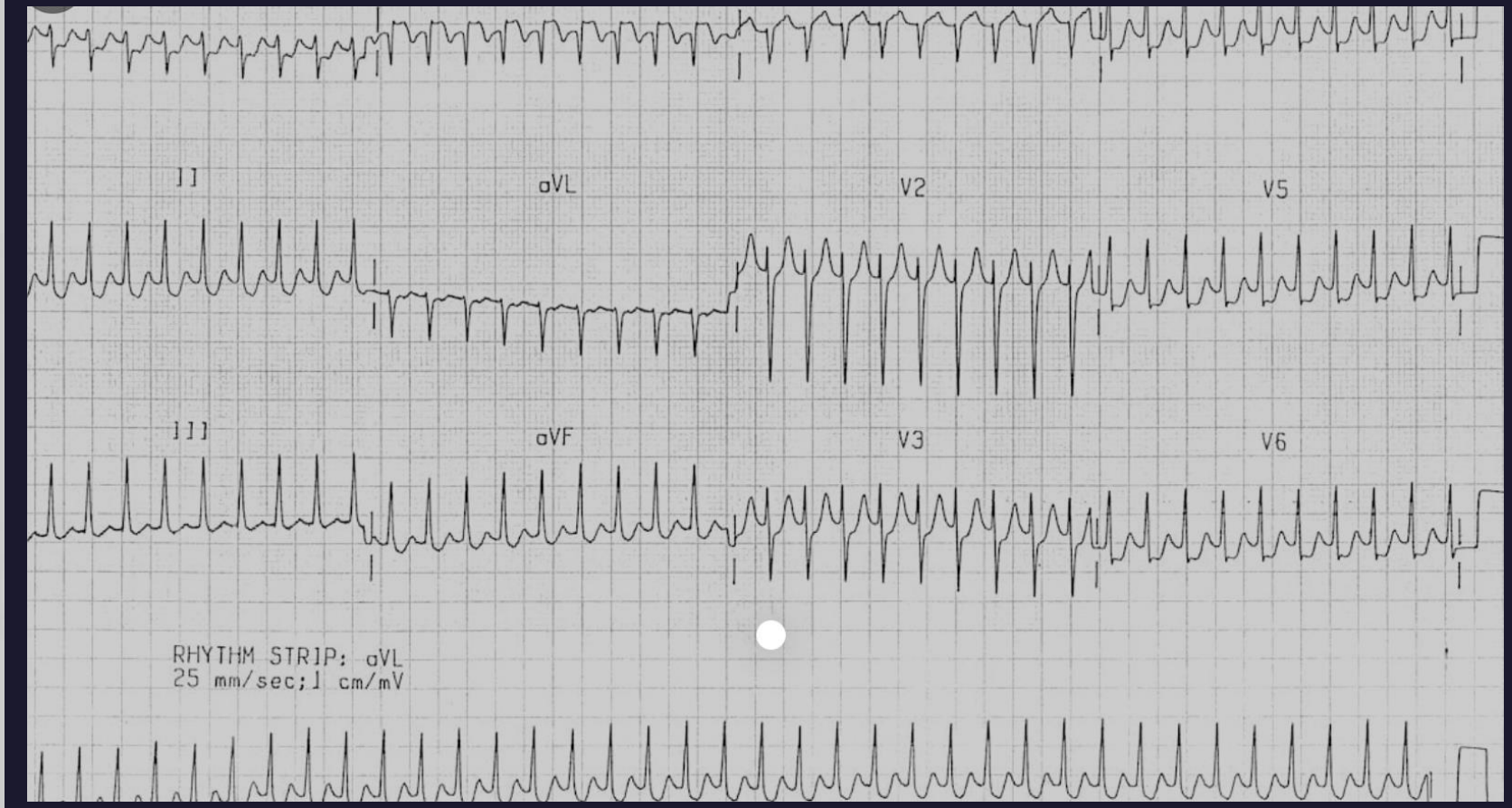
WPW Syndrome
Orthodromic AVRT





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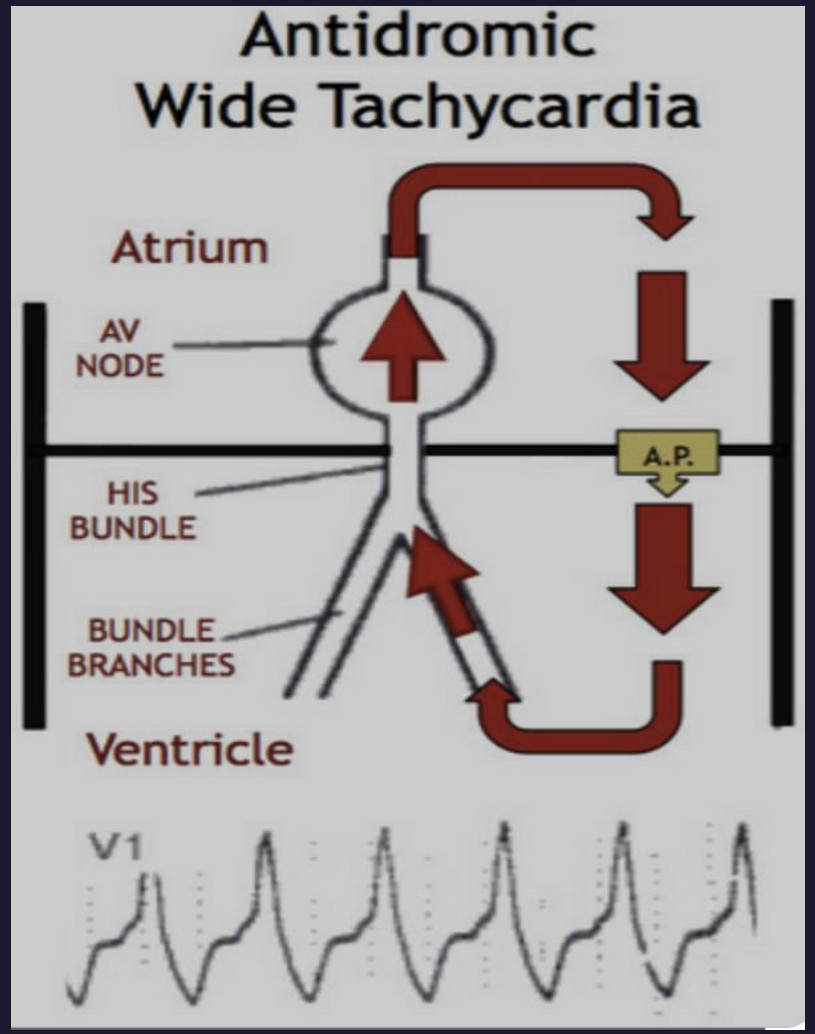
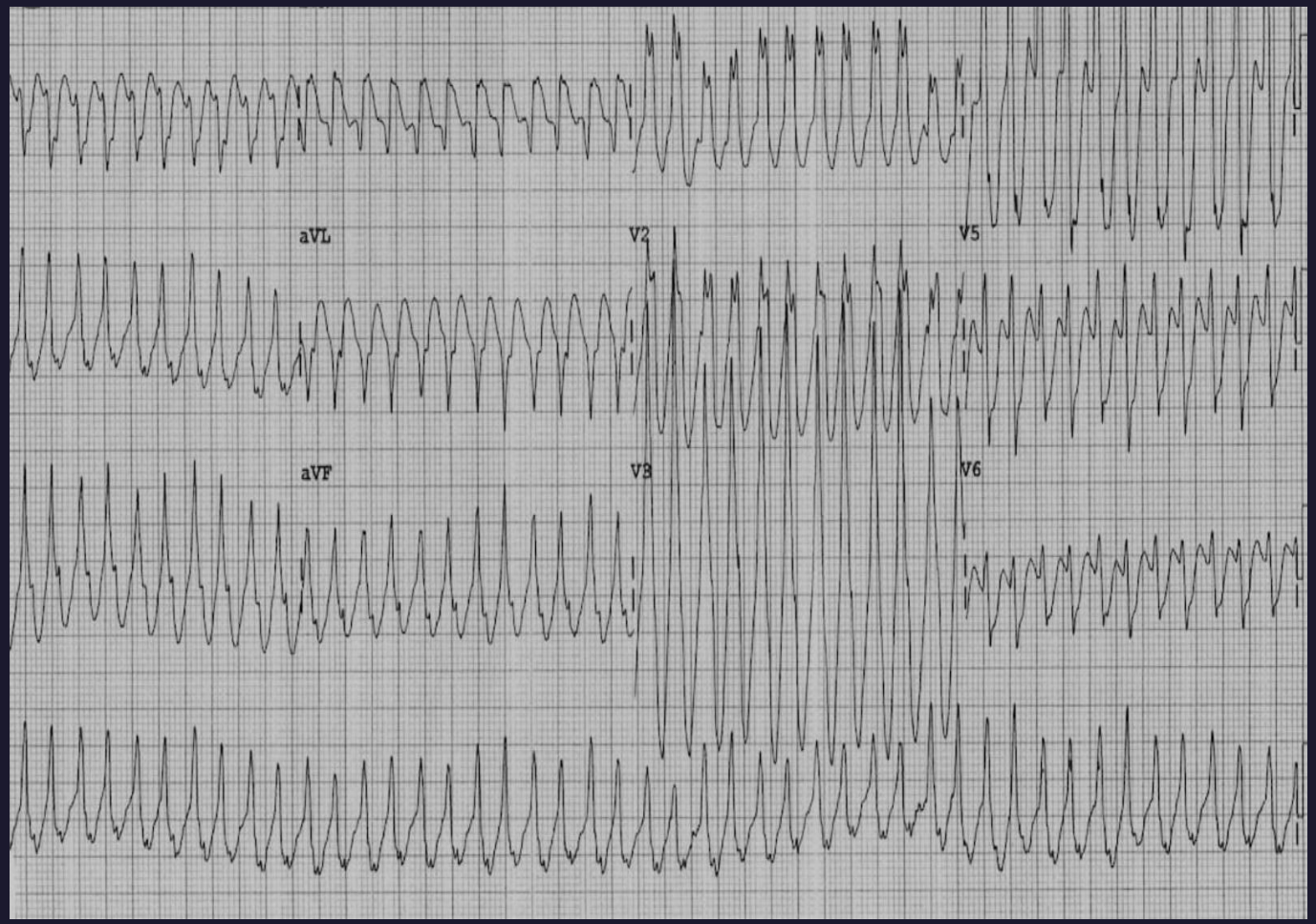
Treatment of WPW Syndrome Orthodromic AVRT

Arrhythmia	Treatment Options
Acute Termination	Unstable : Synchronized Cardioversion Stable: 1. Vagal Maneuver 2. IV Adenosine 3. IV Verapamil 4. IV Procainamide or Beta Blocker or Cardioversion
Chronic Prevention	1. Catheter Ablation 2. Flecainide or Propafenone 3. Amiodarone

WPW Syndrome
Antidromic AVRT





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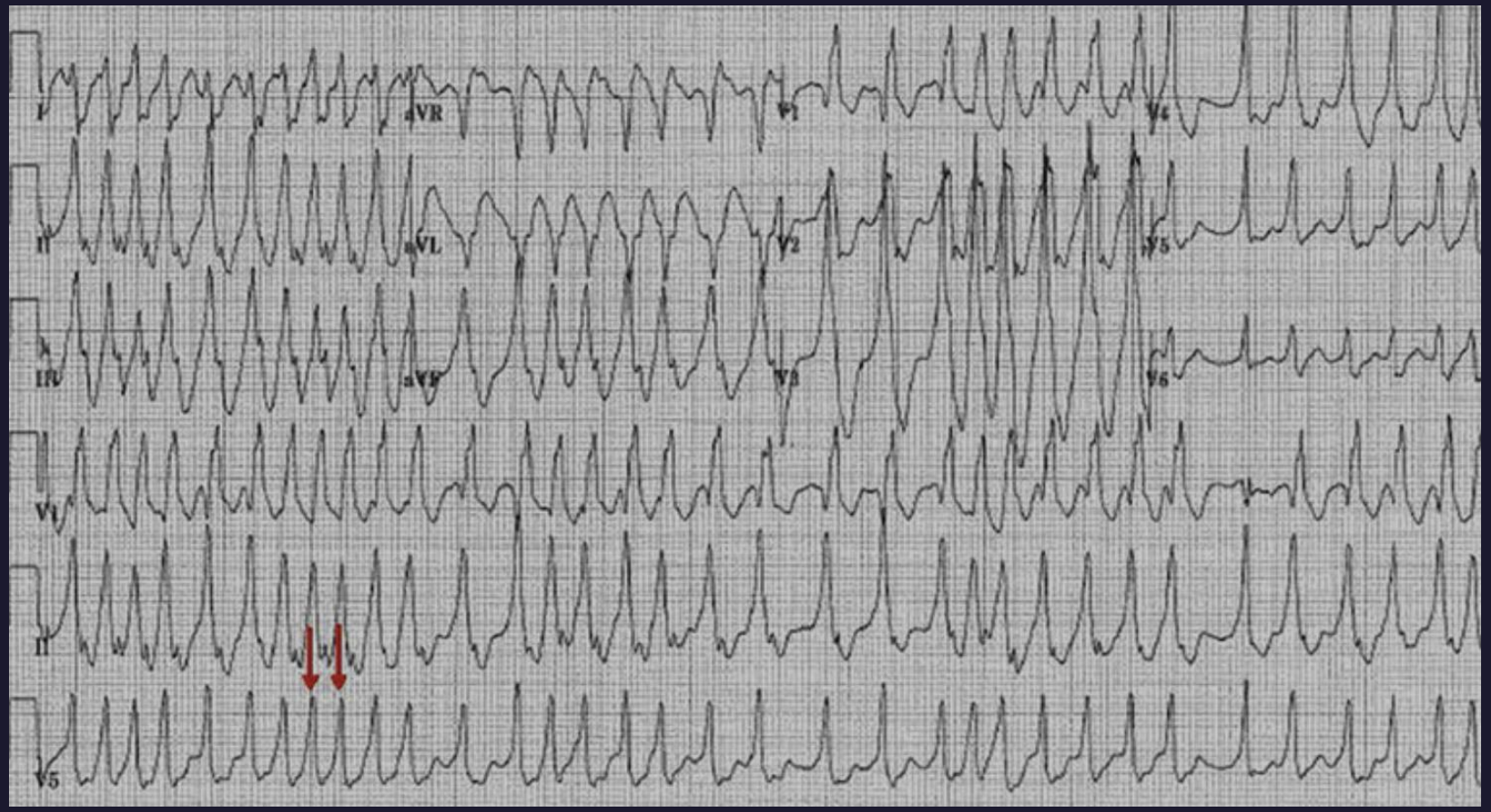
Treatment of WPW Syndrome Antidromic AVRT

Arrhythmia	Treatment Options
Acute Termination	Unstable : Synchronized Cardioversion Stable: 1. If Certain of Dx: Same as Orthodromic 2. If Uncertain of Dx: IV Procainamide or DCCV
Chronic Prevention	1. Catheter Ablation 2. Flecainide or Propafenone 3. Amiodarone

- In acute situations when uncertain of Dx : Avoid Adenosine, Beta Blockers and Digoxin
- In chronic situations avoid Digoxin, Beta Blockers and Calcium Channel Blockers

WPW Syndrome
Pre-excited AF



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Treatment of WPW Syndrome
Pre-excited AF

Arrhythmia	Treatment Options
Acute Termination	Unstable : Synchronized Cardioversion Stable: 1. IV Ibutilide or IV Procainamide 2. Flecainide or Propafenone
Chronic Prevention	1. Catheter Ablation 2. Flecainide or Propafenone 3. Amiodarone

- In acute situations avoid Amiodarone, Digoxin, Beta Blockers, Adenosine, and Calc Chan Blockers
- In chronic situations avoid Digoxin

Conclusion

- SVT can be differentiated from VT based upon QRS width and morphology
- AVNRT is the most common form of SVT followed by AVRT
- Measuring the RP interval is helpful in confirming the type of SVT
- Depending upon the type of SVT management may vary

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