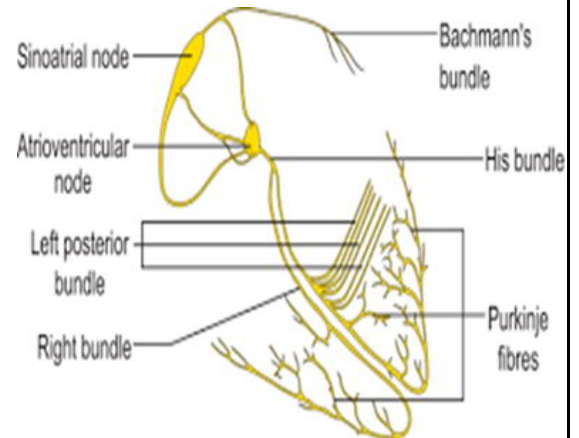


Heart Blocks

- Technically this can mean any blockage of electrical conduction, including sinoatrial node (SAN) and bundle branch blocks (BBB)
- **Usually referring to AV node block**
- Patients may be asymptomatic, or may suffer **symptoms** of palpitations; presyncope/ syncope. They may also present due to initiating cause of block e.g. MI



First Degree AV Block

- Delayed AV conduction with PR interval >200ms
- Can be physiological in fit and well
- Usually inconsequential

First degree AV block



Second Degree Mobitz I AV block (Wenckebach)

- Usually AV node problem
- **Progressive, consecutive PR interval lengthening**
- Eventually one QRS complex is 'dropped'
- P waves should appear regularly
- **Almost always benign**

Second degree AV block (Mobitz I or Wenckebach)



Second Degree Mobitz II AV block

- Usually a disease of the **distal conduction system**
- Intermittent 'dropped' QRS complexes, **no preceding PR prolongation**
- When a QRS is dropped, count the number of P waves before the next QRS, there is usually a **fixed ratio of P waves to conducted QRS complexes** e.g. 2:1, 3:1, 4:1
- The **higher the P:QRS ratio the worse the block**, requiring more P waves to conduct 1 QRS leaves greater time for ventricular escape and dysrhythmia to occur
- **High risk block**, can deteriorate into complete AV block or asystole

Second degree AV block (Mobitz II)



Second degree AV block (2:1 block)



Complete/ Third Degree AV block

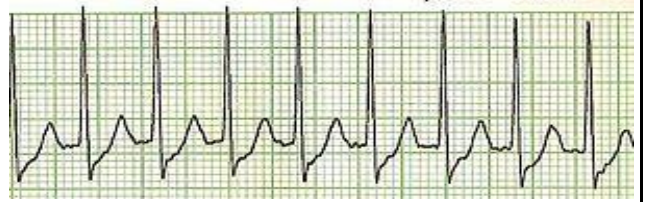
- **Complete dissociation between SAN and ventricle**
- ECG shows no correlation between P waves and QRS complexes
- Cardiac output relying on ventricular escape rhythm
- These **ventricular escape rhythms are extremely unreliable**
- They may deteriorate to asystole at any time
- Even prior to this the patient will almost definitely rapidly develop haemodynamic instability & cardiogenic shock

Third degree AV block with junctional escape



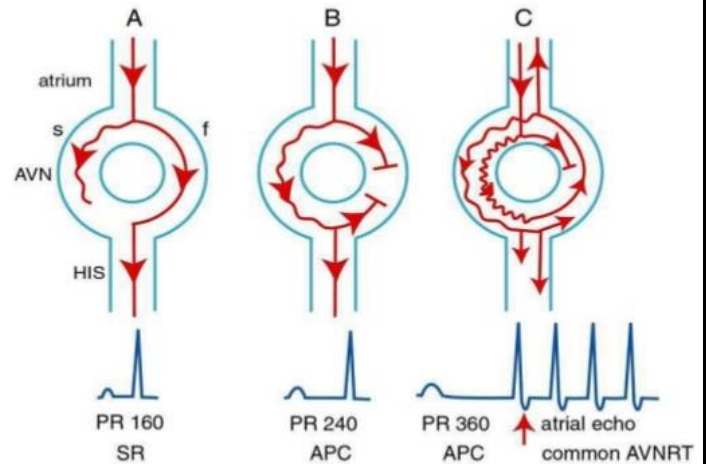
Supraventricular tachycardia (SVT)

- Often self- limiting
- Patients describe **symptoms** of palpitations; dyspnoea; chest pain; anxiety; syncope/ presyncope
- Technically includes any arrhythmia generated above ventricles, but usually referring to one of three causes:



AVNRT (AV Nodal re-entrant tachycardia)

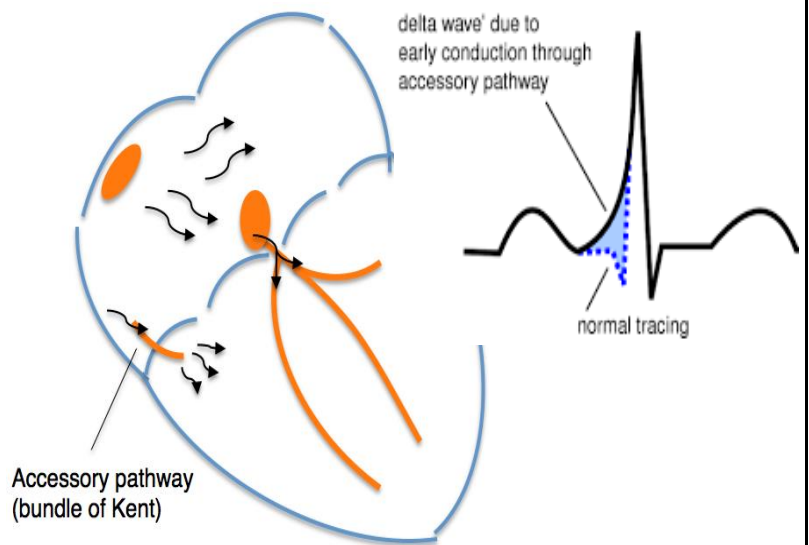
- Involves a fast and slow conduction pathway around AVN
- Most of the time the fast tract dominates over slow tract cancelling it out
- Occasionally the slow tract conducts just as the fast tract is repolarising
- The signal propagates anterograde along slow tract and then retrograde up the fast tract
- This sets up a self- propagating circuit



This is the **type of SVT on which vagal manoeuvres and AV node blocking drugs work** e.g. adenosine

AVRT (Atrioventricular re-entrant tachycardia)

- Wolff Parkinson White Syndrome
- Involves an accessory conduction pathway (**Bundle of Kent**), usually between LV & LA.
- This bypasses AVN and insulating cardiac skeleton between atria and ventricles
- Sets up a recurrent loop
- When in sinus rhythm a delta wave is seen on ECG
- AV node blocking drugs less likely to work
- Requires ablation to treat definitively



Paroxysmal Atrial Tachycardia

- Involves an ectopic pacemaker causing re-entrant rhythm
- Can be unifocal or multifocal
- Most commonly seen in older patients with lung disease (usually hypoxic COPD patients) or digitoxic heart failure patients
- Can deteriorate into AF
- Treatment is with rate controlling beta blocker or calcium channel blocker