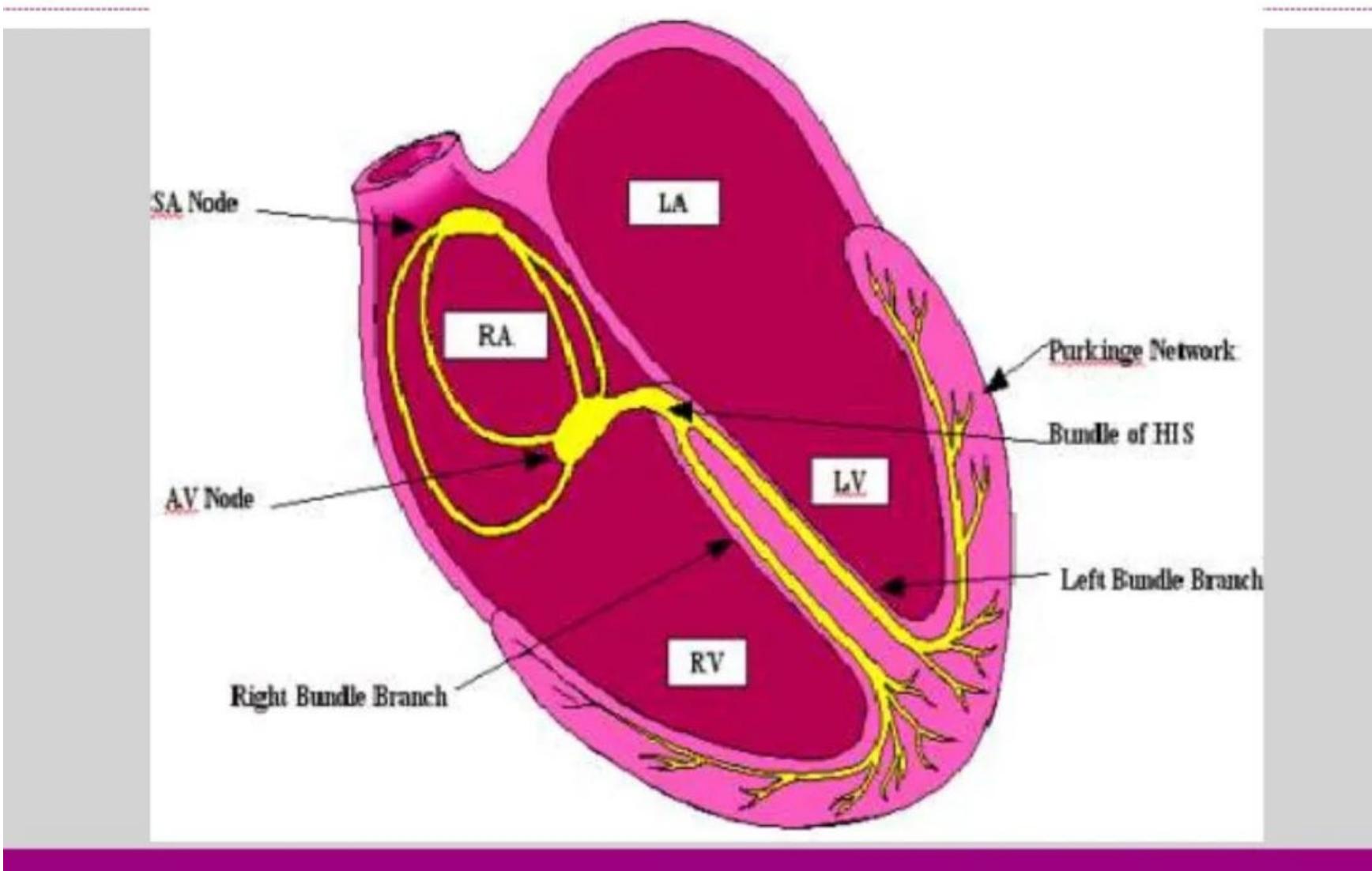


DEFINITION



- Short PR interval + usually with abnormal QRS complex
- Almost congenital pathologic process
- Related to the presence of accessory pathways in cardiac conduction system
- Clinically related to paroxysmal tachyarrhythmia events + symptoms
- Commonest known: Wolff-Parkinson-White (WPW) syndrome and Lown-Ganong-Levine (LGL) syndrome

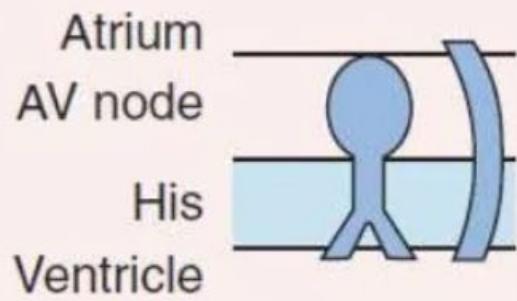
Normal Cardiac Conduction System



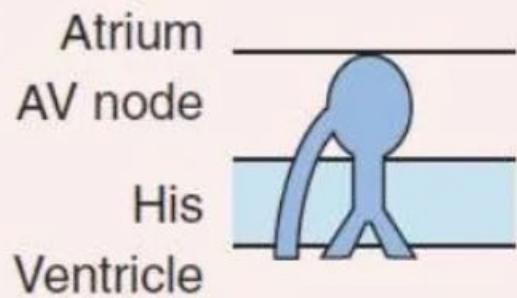
ACCESSORY PATHWAYS (AccP)



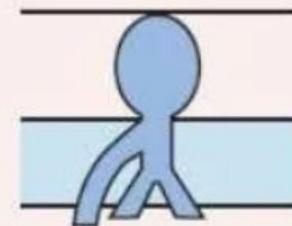
- AccP is congenitally abnormal pathway connecting A-V
- Varies in :
 - connecting circuits: atrioventricular (Kent's bundle); Mahaim fibers (atriofascicular/Brezenmacher tract, nodoventricular, fasciculoventricular); atriohisian (James's fiber)
 - direction: anterograde, retrograde, both
- The characteristics of AccP compared to AV nodal conduction;
 - FASTER conduction velocity
 - LONGER refractory period (in sinus rhythm)



Atriohisian

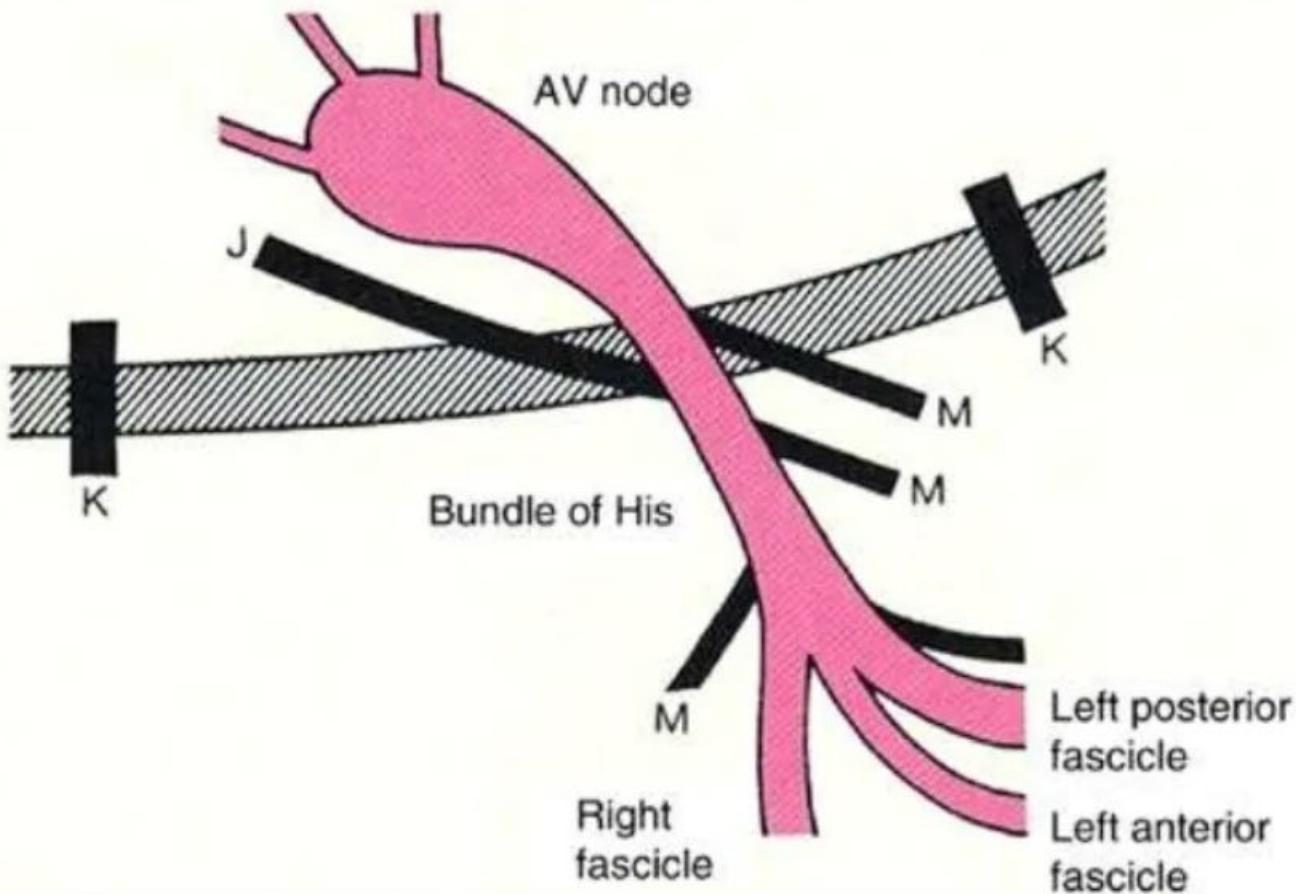


Nodoventricular



Fasciculoventricular

Simplified representation of the various possible accessory conduction pathways

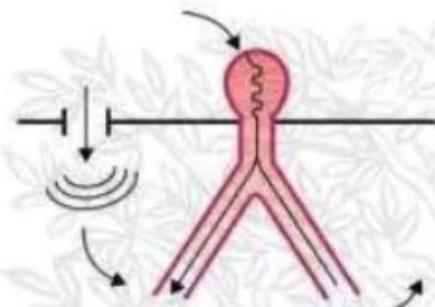


Medscape

Source: Europace © 2009 Oxford University Press

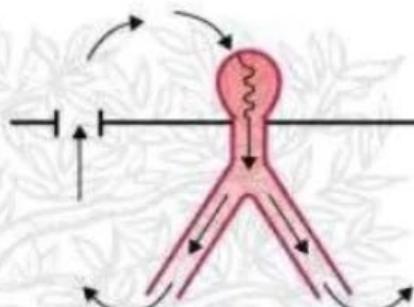
K = bundle of Kent; J = bundle of James; M = Mahaim fibres.
The hatched area represents the atrioventricular border

Ventricular preexcitation



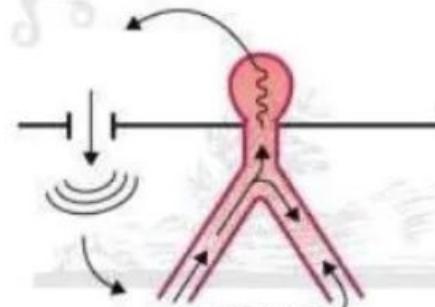
A

Orthodromic tachycardia



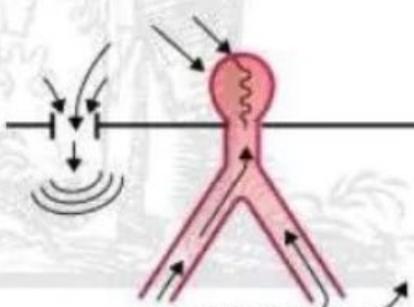
B

Antidromic tachycardia

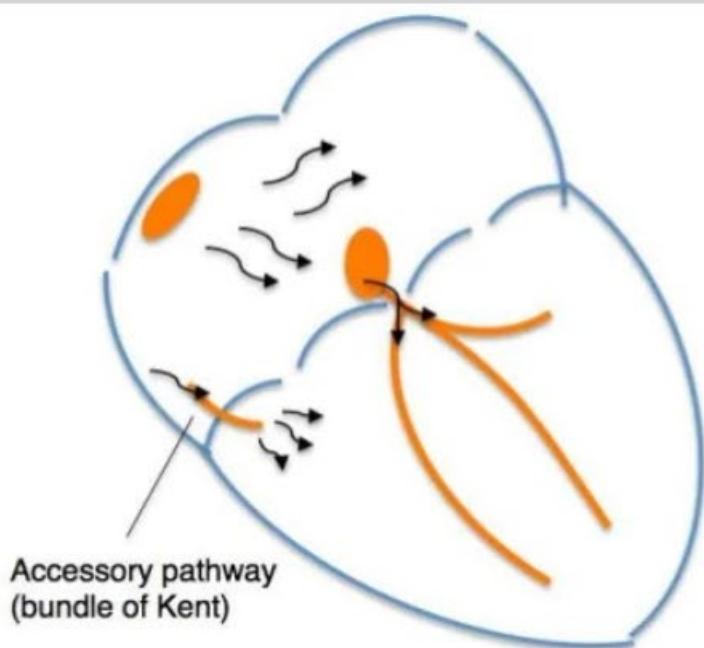


C

Preexcitation during A - Fib



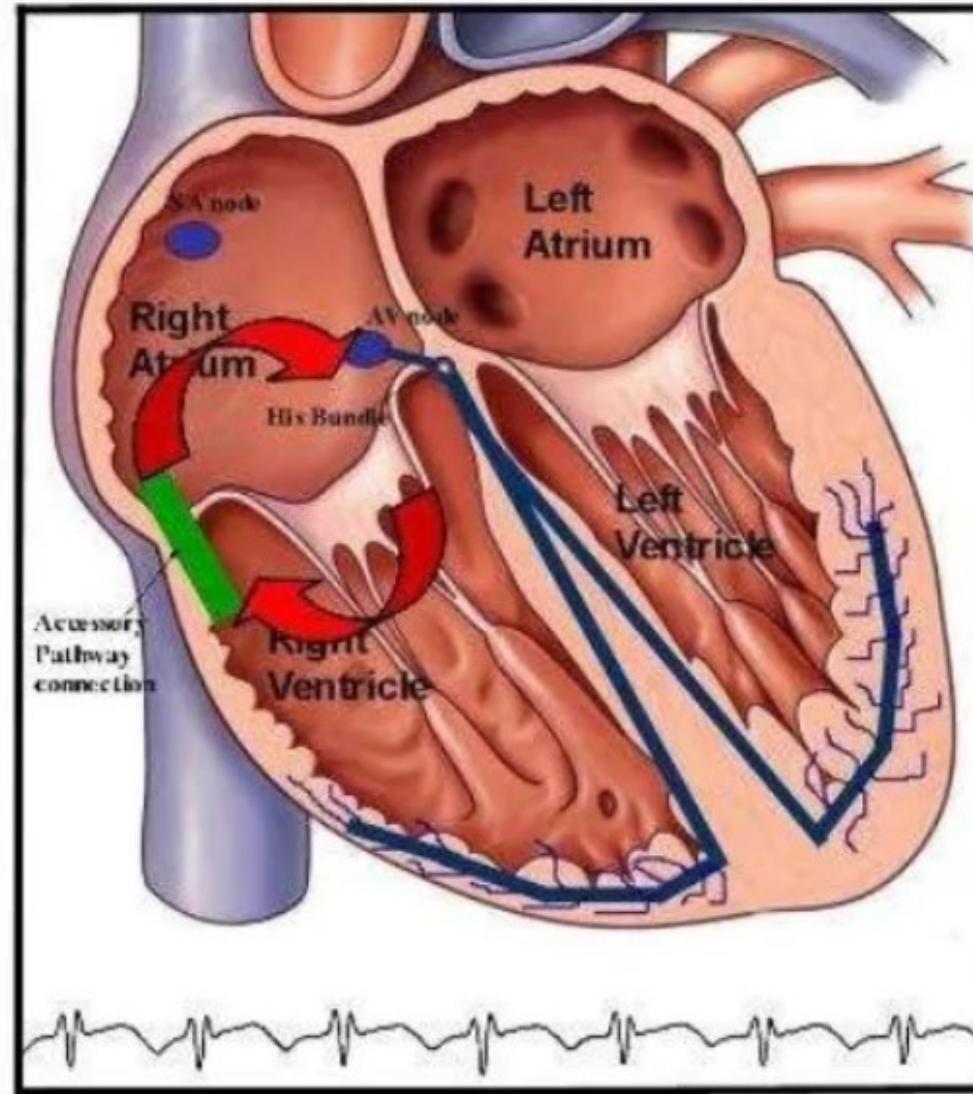
D



Accessory pathway
(bundle of Kent)

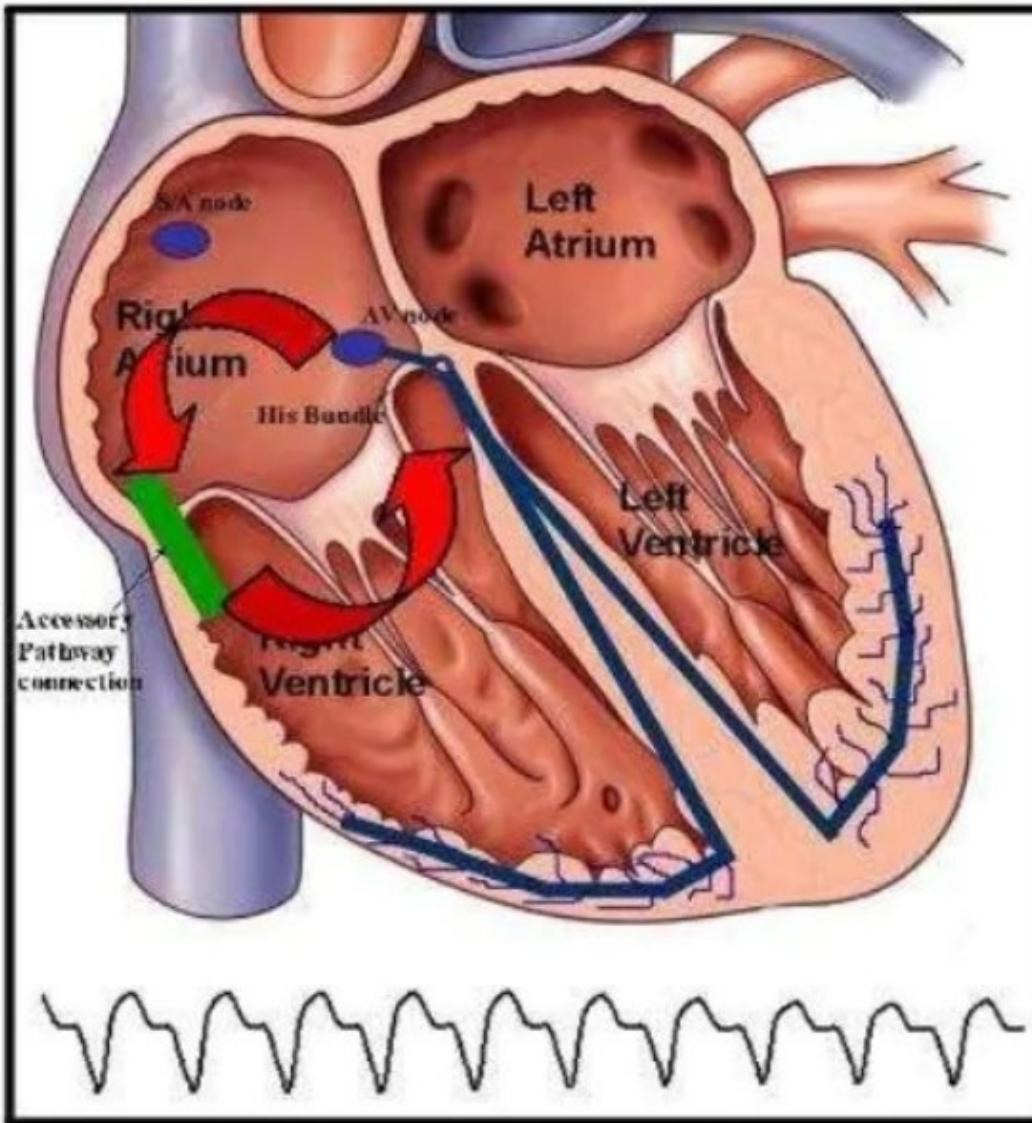
ORTHODROMIC

- DESCEND- NORMAL PATHWAY
- ASCEND- ACCESSORY PATHWAY
- In orthodromic tachycardia, the normal pathway is used for ventricular depolarization and the accessory tract is used for reentry.
- VPC's can initiate orthodromic tachycardia
- On ECG findings,
 - the delta wave is absent,
 - QRS complex is normal,
 - P waves are inverted in the inferior and lateral leads

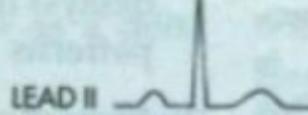
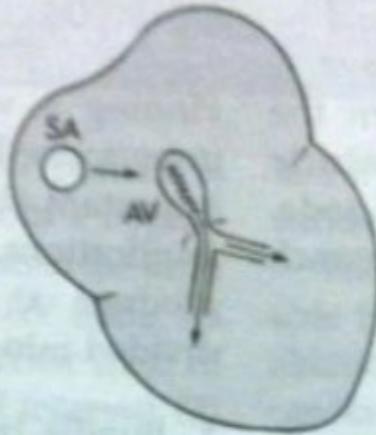


ANTIDROMIC

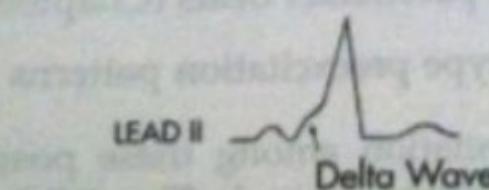
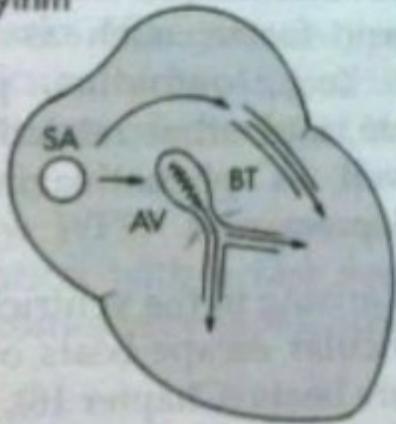
- LESS COMMON PATHWAY.
- DESCEND- ACCESSORY PATHWAY.
- ASCEND – NORMAL PATHWAY
- On ECG findings,
 - the QRS is wide, which is an exaggeration of the delta wave during sinus rhythm (ie, wide-QRS tachycardia).
 - Such tachycardias are difficult to differentiate from ventricular tachycardia



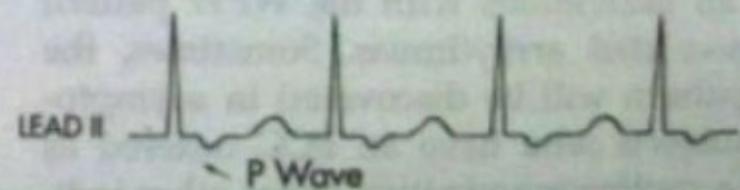
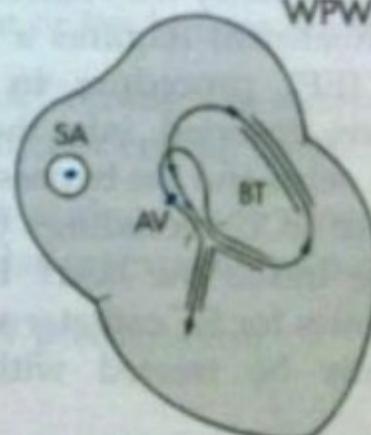
Normal Sinus Rhythm



WPW: Sinus Rhythm



WPW: Atrioventricular Reentrant Tachycardia (AVRT)



MAHAIM FIBRE:

Origin- distal to AV node

Ends in the ventricular myocardium

ECG:

- normal PR interval
- delta waves

JAMES FIBRE (LGL SYNDROME)

- Origin- atria
- Bypass AV node
- Ends in bundle of HIS
- ECG:
 - Short PR
 - Normal QRS

