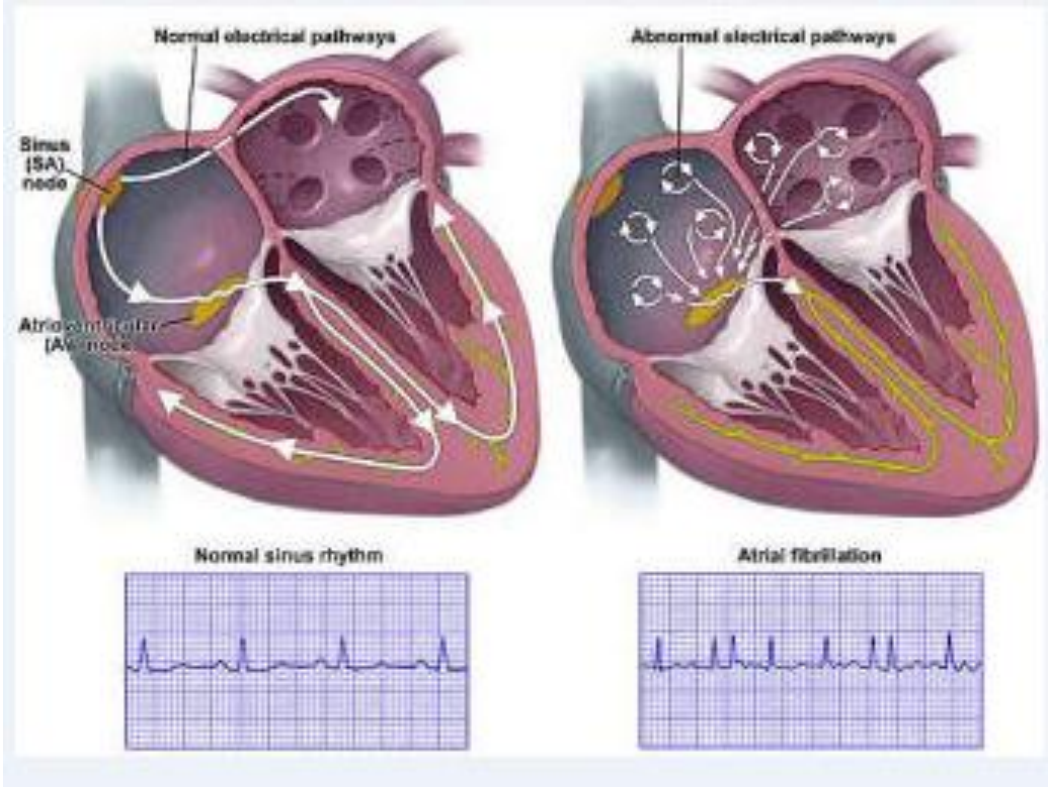
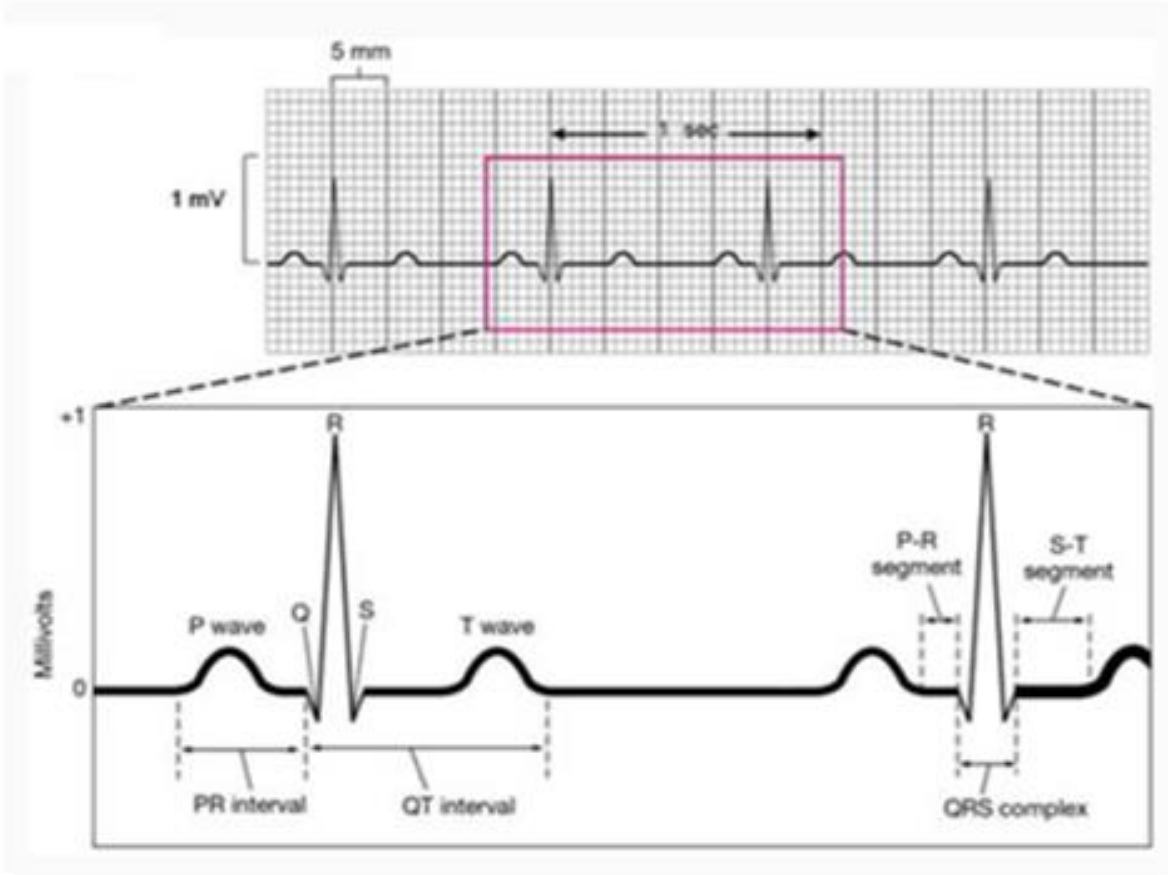
Lec -4- heart

ا.م.د. بان حسن عادل



Normal values of ECG intervals



P-R INTERVAL → From beginning of P wave to beginningQ wave

0.12- 0.2 sec

Q-T INTERVAL → From beginning of Q wave to the end of T wave

Up to 0.12

QRS COMLEX → From beginning of Q wave to the end of S wave

0.45 sec

Heart sound

- Closing of the AV and semilunar valves
- Lab (first sound) :
  - produced by closing of the AV valves during isovolumetric contraction .
- Dub (second sound):
  - produced by closing of the semilunar valves when pressure in the ventricles falls below pressure in the arteries

Heart murmurs

- Abnormal heart sounds produced by abnormal patterns of blood flow in the heart .
- Defective heart valves :

- valves become damaged by antibodies made in response to an infection , or congenital defects.

- mitral stenosis :

- mitral valve becomes thickened and calcified .

- incompetent valve

- damage to papillary muscle.

- valve do not close properly :murmurs produced as blood regurgitates valve flaps.

- septal defects

  - usually congenital .

1- holes in septum between the left and right sides of the side of the heart .

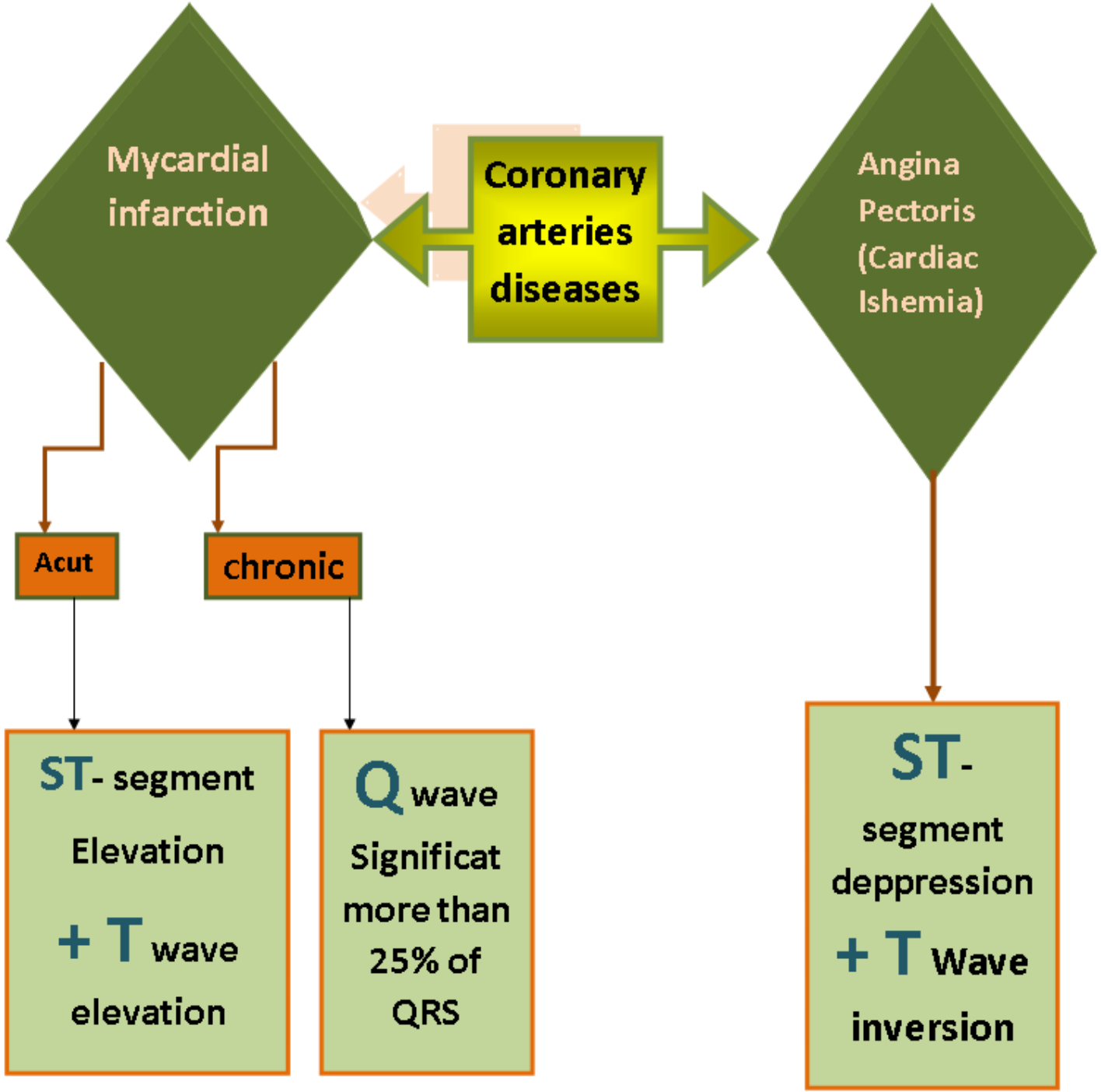
2- may accur either in interventricular or interventricular septum.

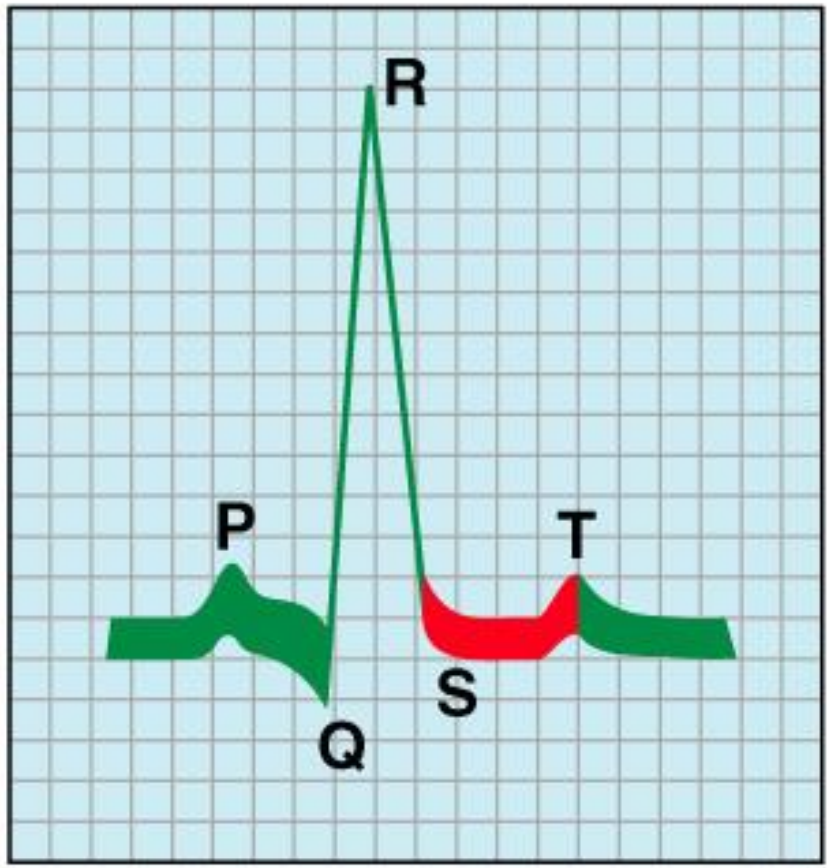
-blood passes from left to right.

Ischemic Heart Disease

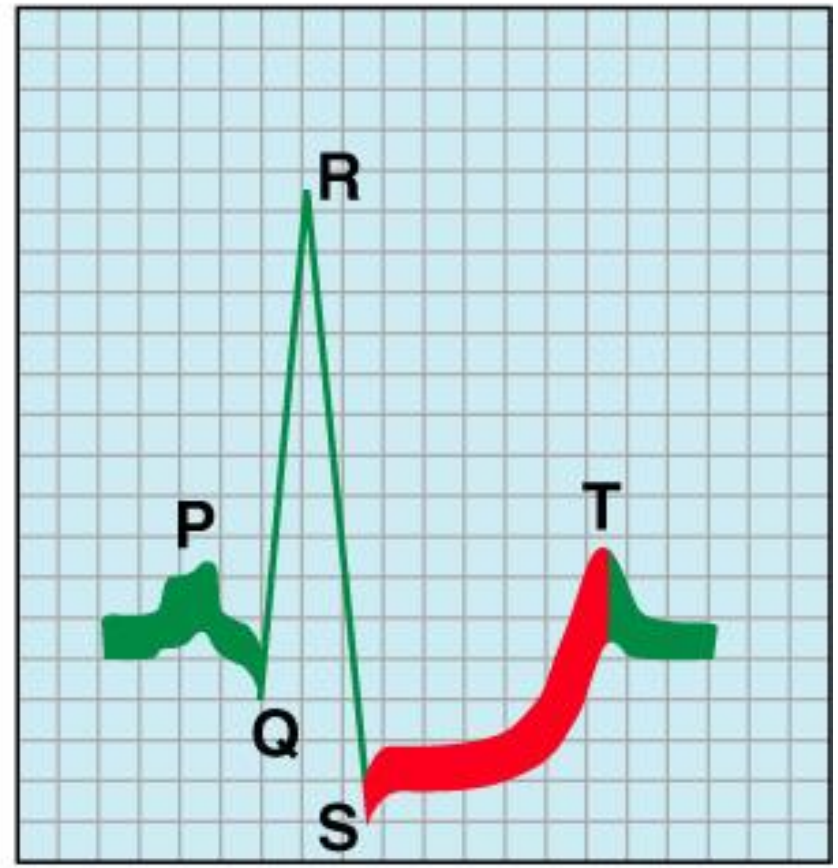
Myocardial infarction is an area of heart muscle that degenerates following loss of blood supply.

Angina pectoris refers to transient chest discomfort that develops when coronary blood flow fails to meet myocardial oxygen need.

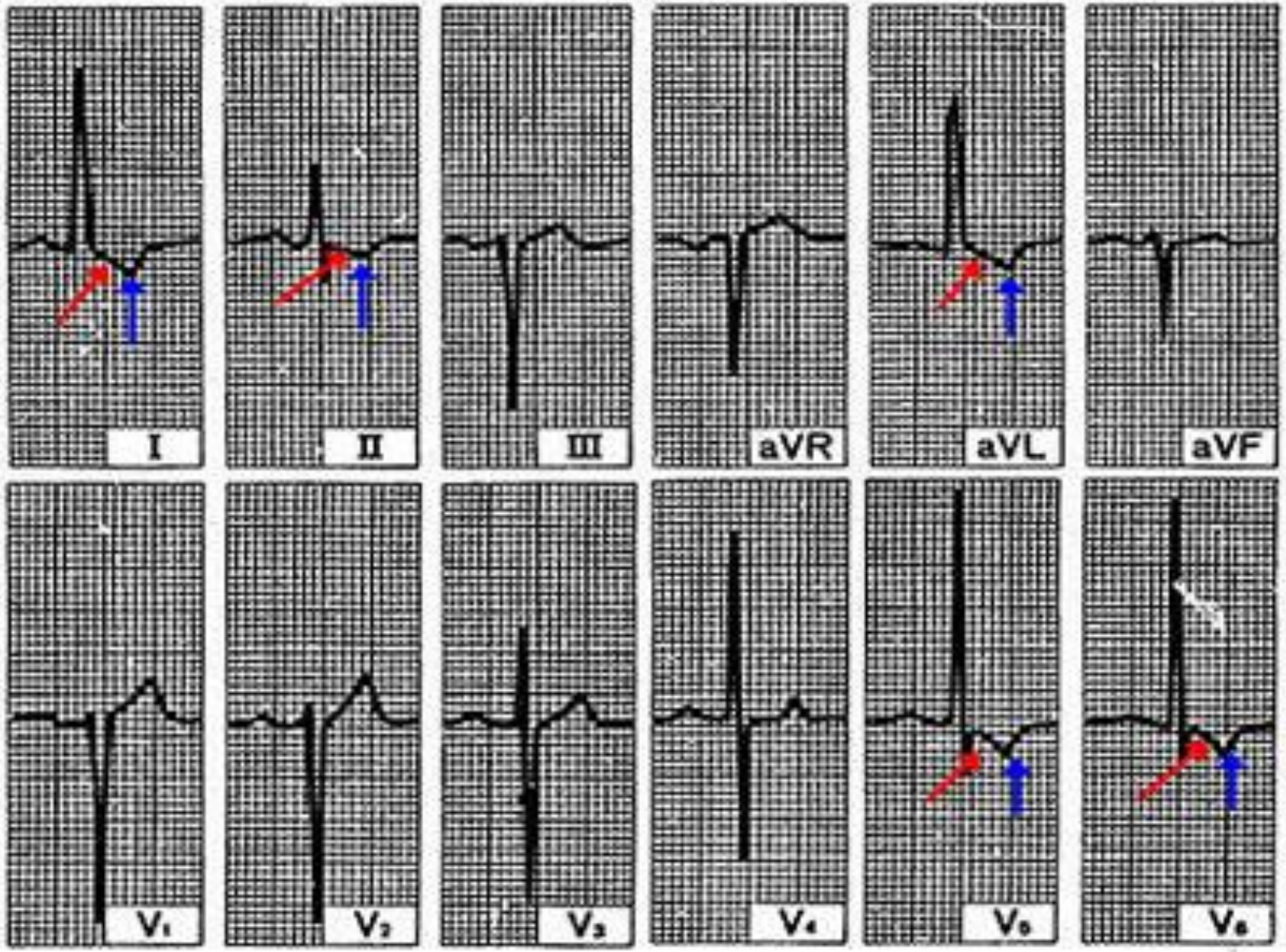

Mycardial infarction
Coronary arteries diseases
Angina Pectoris (Cardiac Ishemia)
Acut
chronic
ST- segment Elevation
+ T wave elevation
Q wave Significat more than 25% of QRS
ST- segment deppression
+ T Wave inversion



Normal



Ischemia



Angina pectoris

Conduction and its problems

1-First degree heart block

2-second degree heart block

this :

•Most beats are conducted with a constant PR interval ,but occasionally there is an atrial contraction without a subsequent ventricular contraction . this is called the (*Mobitz type 2*)

•There may be progressive lengthening of the PR interval and then failure of conduction of an atrial beat ,following by a conducted beat with a shorter PR interval and then a repetition of this cycle this is the (*Wenckebach*)

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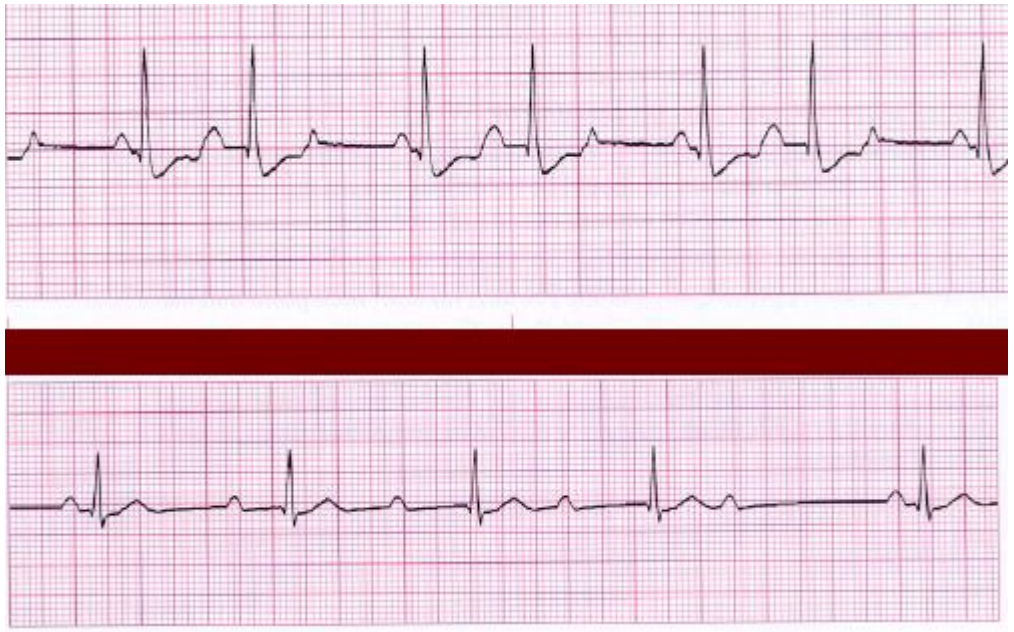
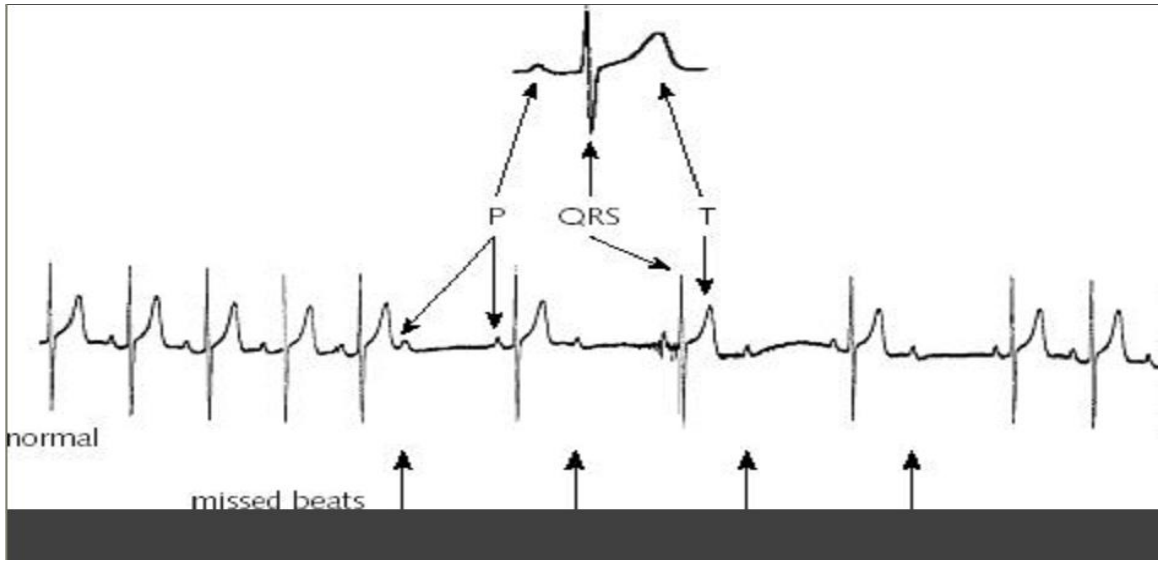


•**There may be alternate conducted and non- conucted artial beats (or one conducted atrial beat and then two non- conducted beats) , this called 2:1(two to one) or 3:1 (Three to one)conduction .**

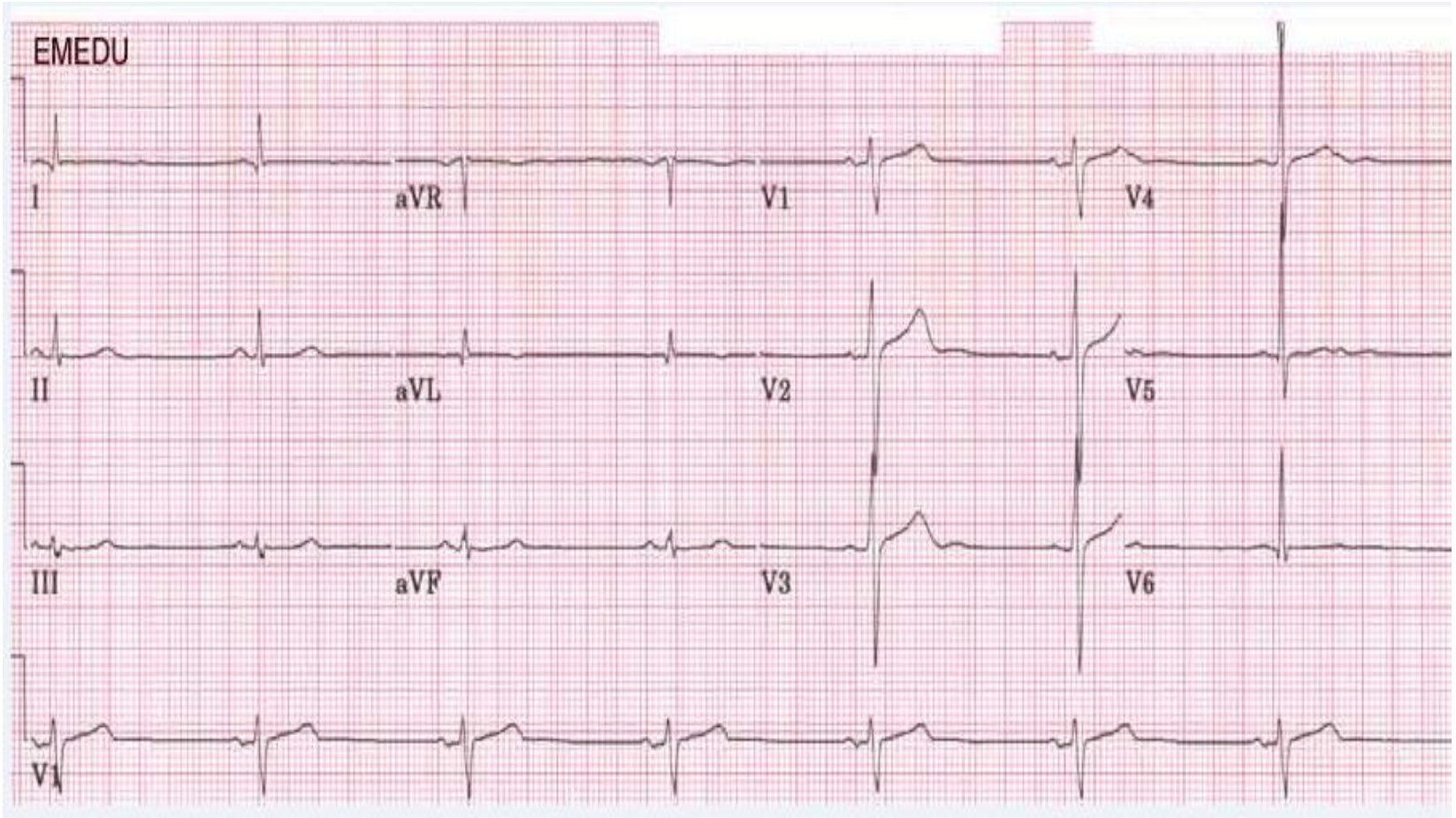
3- Thrid degree heart block



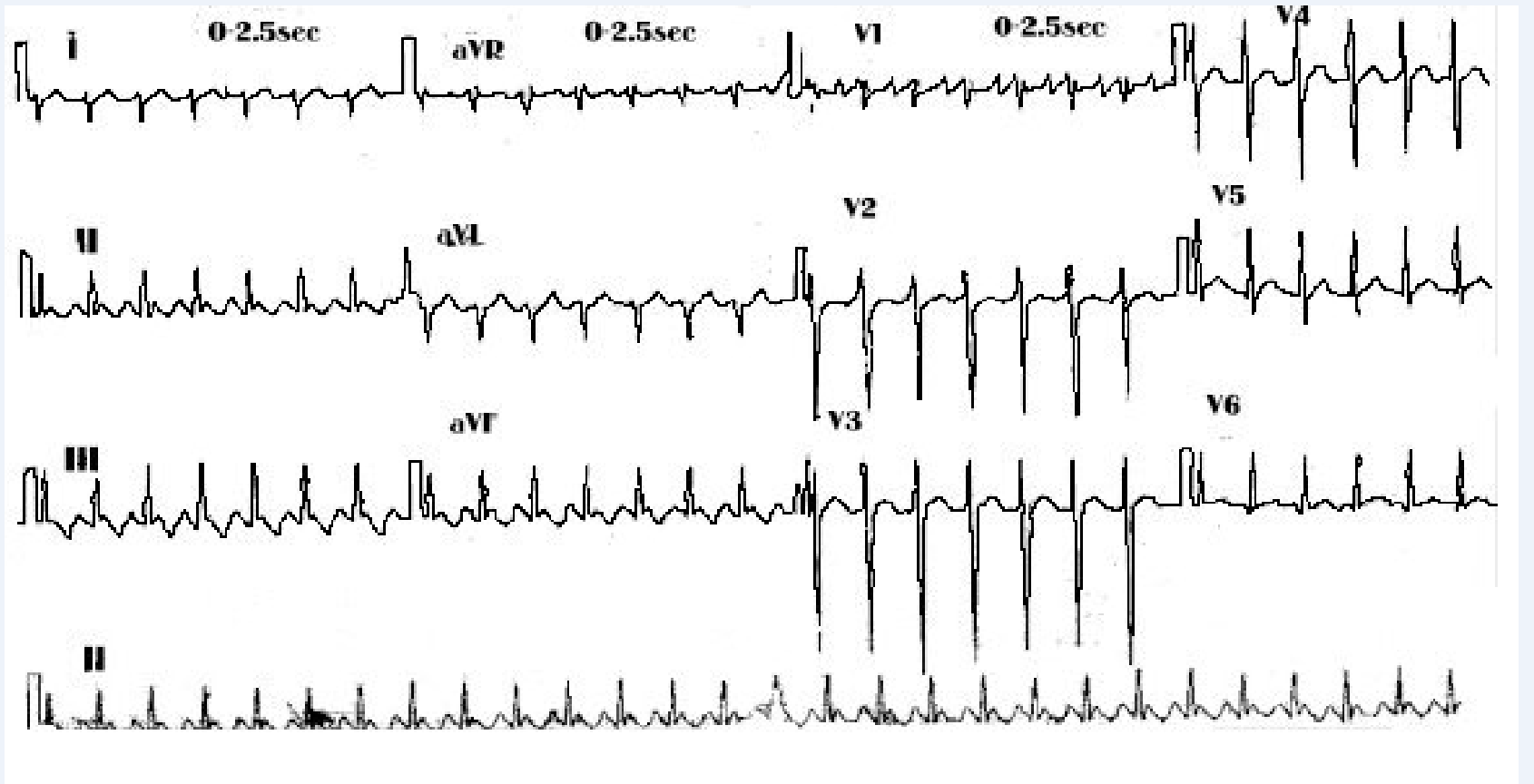
The bradycardia & tachycardia

The bradycardia: it is clearly advantageous if different parts of the heart are able to initiate the depolarization sequence , because this heart a series of failsafe mechanisms that will keep it going if the SA node fails to depolarize , or if conduction of depolarization wave is blocked . However ,the protective mechanisms must normally be inactive if competition between normal and abnormal sites of spontaneous depolarization is to be avoided.

The tachycardia :Foci in the atria ,the junctional (Avnodal)region,and the ventricles may depolarize repeatedly, causing a sustained tachycardia. The criteria already described can be used to decide the origin of the arrhythmia ,and as before the most important thing is try to identify a P wave.



THE ECG OF BRADYCARDIA



THE ECG OF TACHYCARDIA