



# Dynamic Dysrhythmia

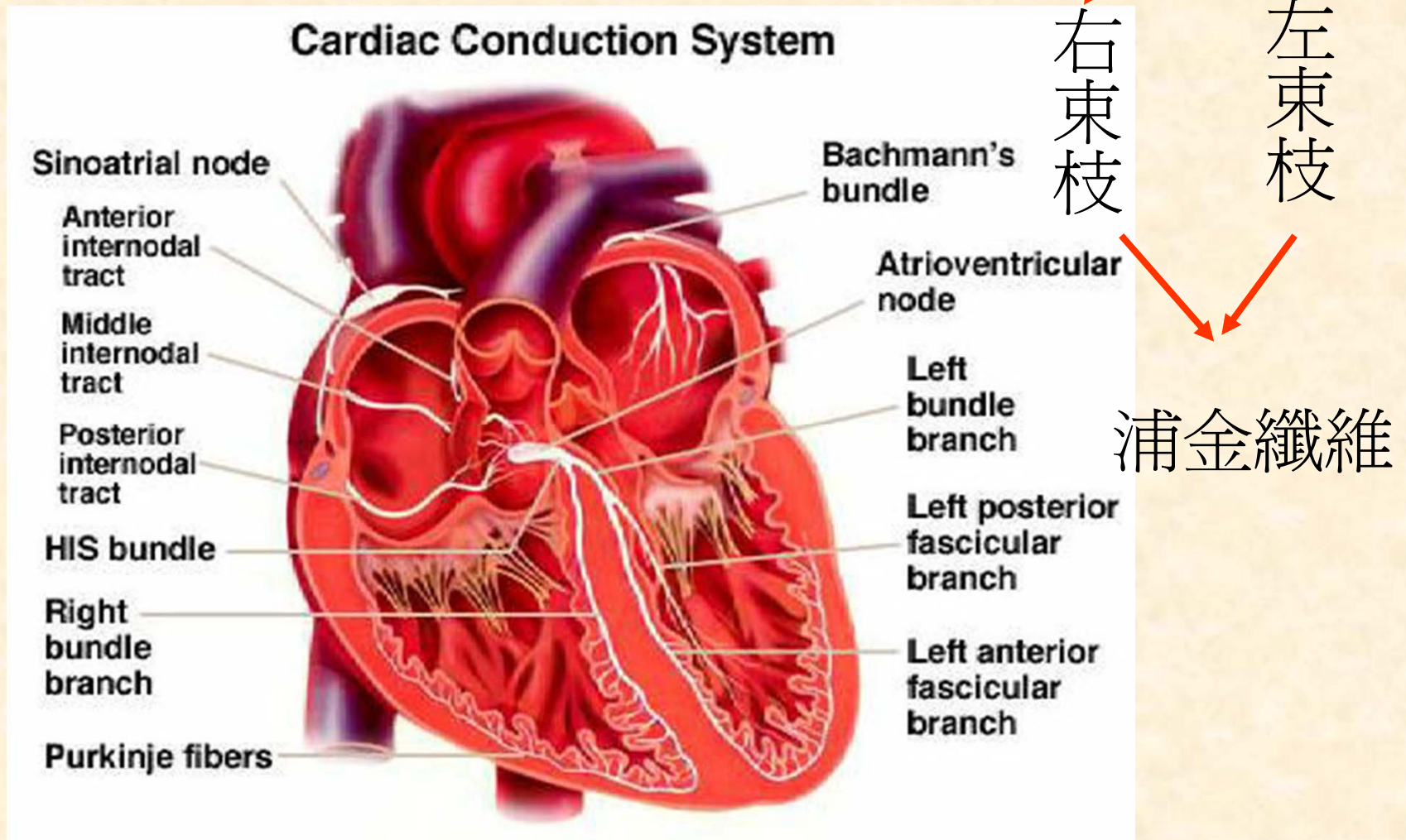


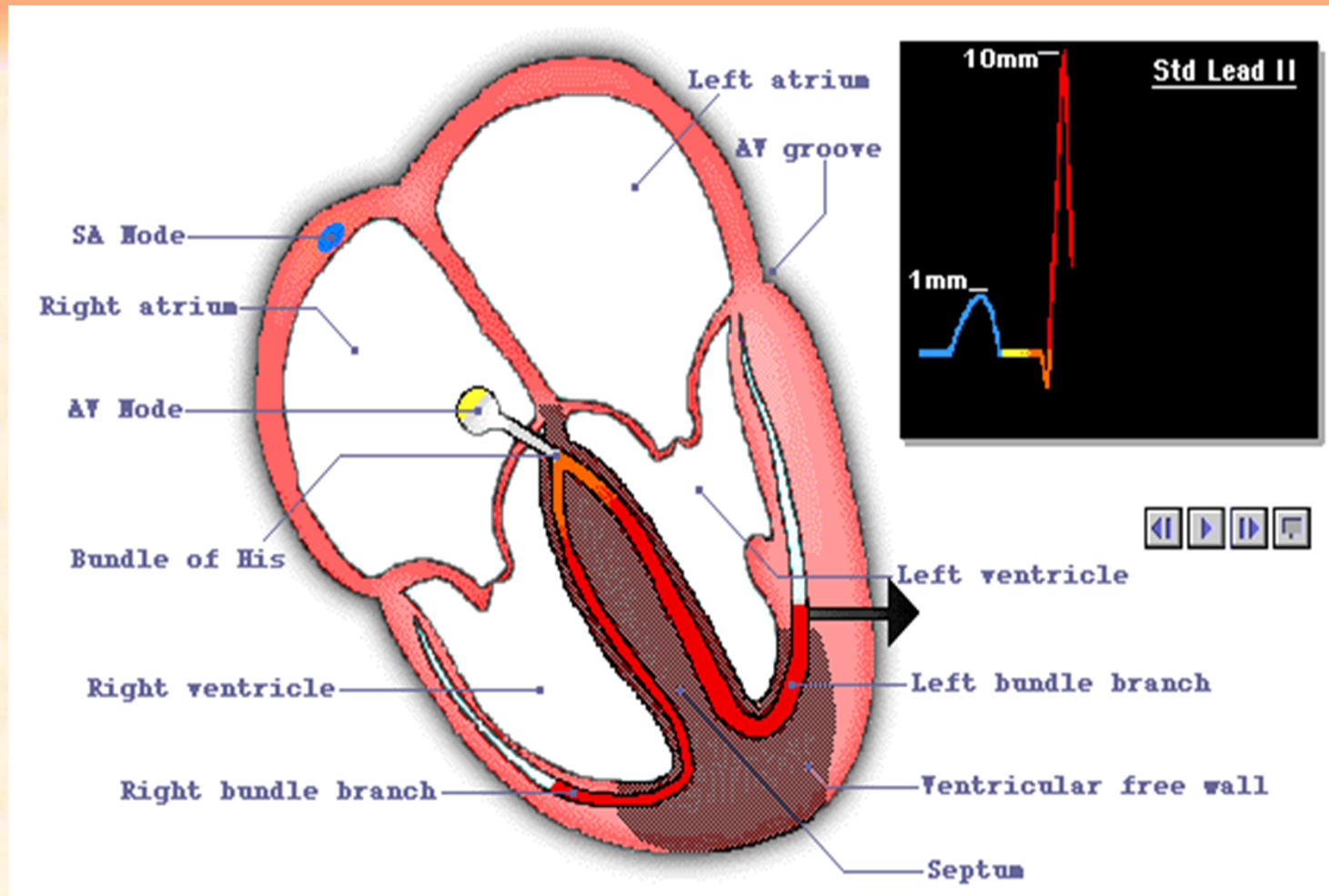
## 快速心律判讀 準則與方法

三總急診部

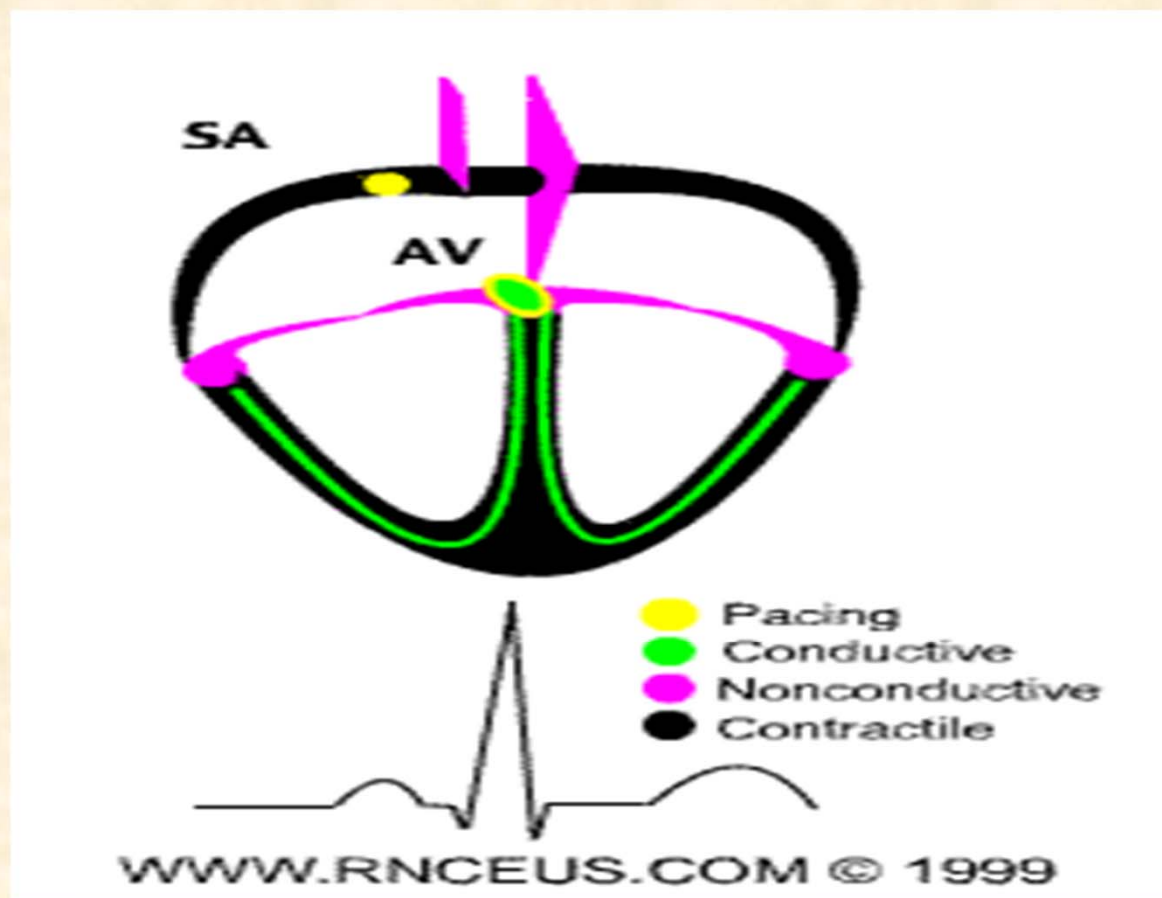


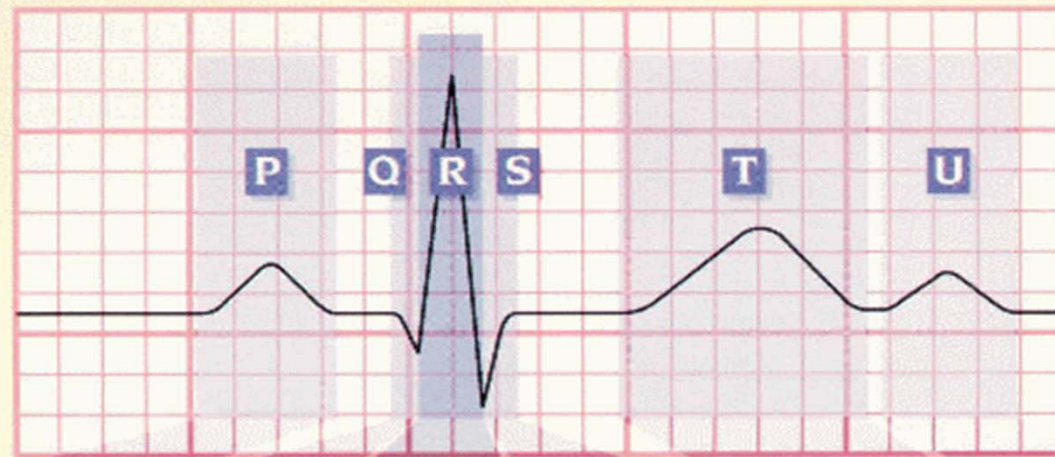
竇房結 <sup>結間路徑</sup> → 房室結 → 希氏束



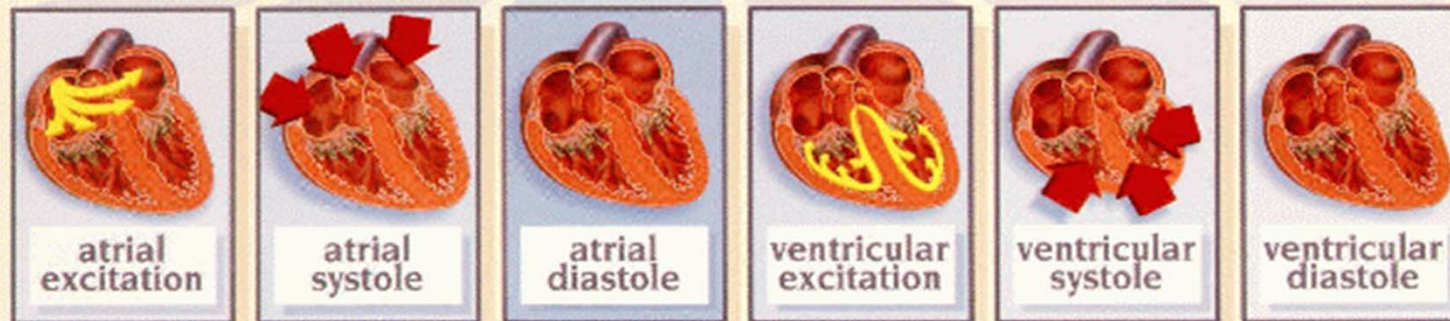


# 心電圖的基本原理





U 波: 心  
室內  
Purkinje  
fiber 的再  
極化



P波: 心房  
去極化

QRS: 心室去  
極化

T波: 心室再  
極化



# 正常的心電圖

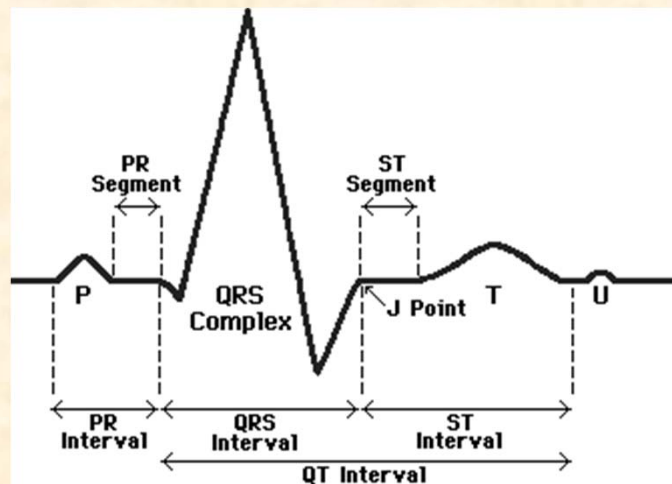


圖 7-2 正常的心電圖



# 快速心律判讀準則與方法

1. 心跳數（快、慢）
2. QRS（寬、窄）  
（wide or narrow QRS）
3. P波（P wave）
4. 規則性（Regularity）
5. P & QRS 相關性



# 快速心律判讀準則與方法

- 心律命名

出處 + 心跳數 (快or慢) (origin + HR)



圖 7-6 竇性頻脈 (sinus tachycardia, ST)

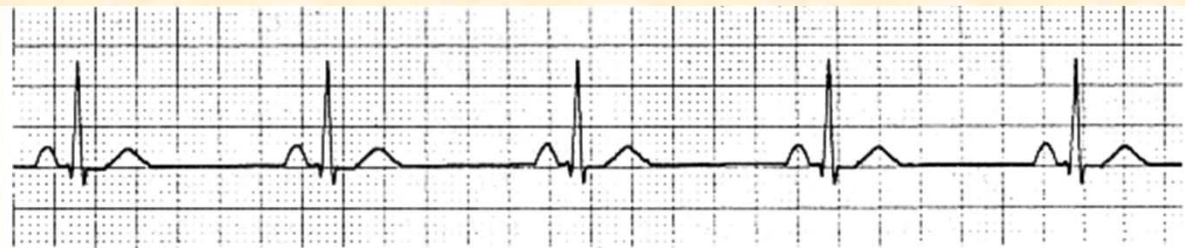


圖 7-14 竇性緩脈 (sinus bradycardia, SB)





# 快速心律判讀準則與方法

**1-(1):沒有脈搏(致命的心律)**

**(Vf, pulseless VT, PEA, asystole)**

**1-(2):有脈搏**

**(Normal, Tachycardia, Bradycardia)**



# 沒有脈搏(致命的心律)

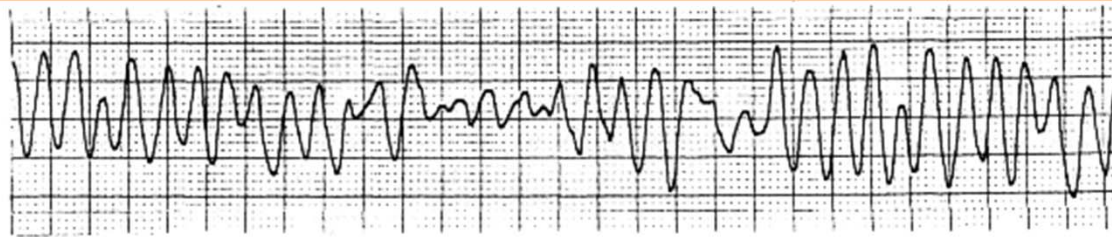


圖 7-3 心室顫動 (ventricular fibrillation, VF)



圖 7-4 心室頻脈 (ventricular tachycardia, VT)



圖 7-5 torsades de pointes

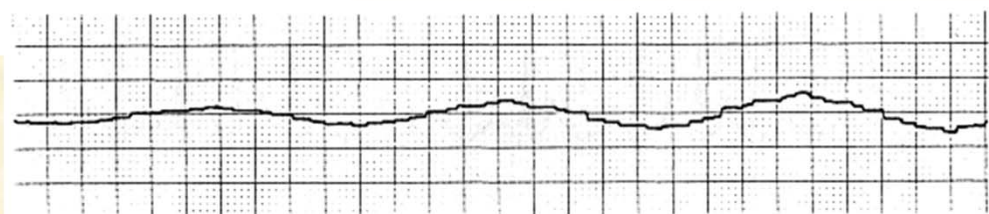


圖 7-10 心室停止 (ventricular asystole, VA)



# 有脈搏

每分鐘心跳數  $> 100$  則為心搏過速

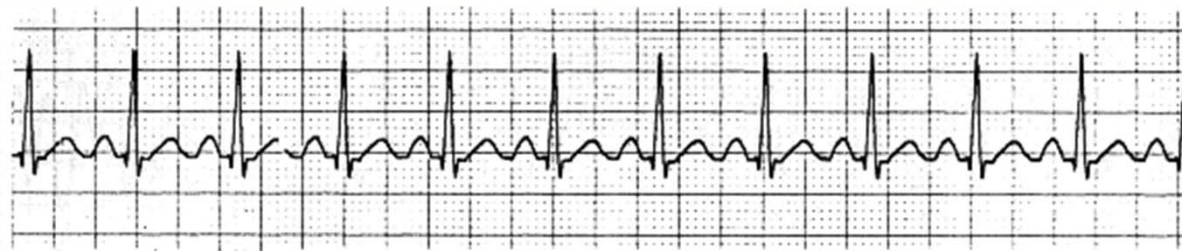


圖 7-6 竇性頻脈 (sinus tachycardia, ST)

每分鐘心跳數  $< 60$  則為心搏過緩



圖 7-14 竇性緩脈 (sinus bradycardia, SB)



# 快速心律判讀準則與方法

**2-(1): 寬QRS波**

**(VT, Idioventricular rhythm)**

**2-(2): 窄QRS波**

**(Sinus, Atrial, Junctional rhythm, PSVT)**



# 寬QRS波 (Ventricle)



圖 7-11 自發性心室心律 (idioventricular rhythm, IVR)

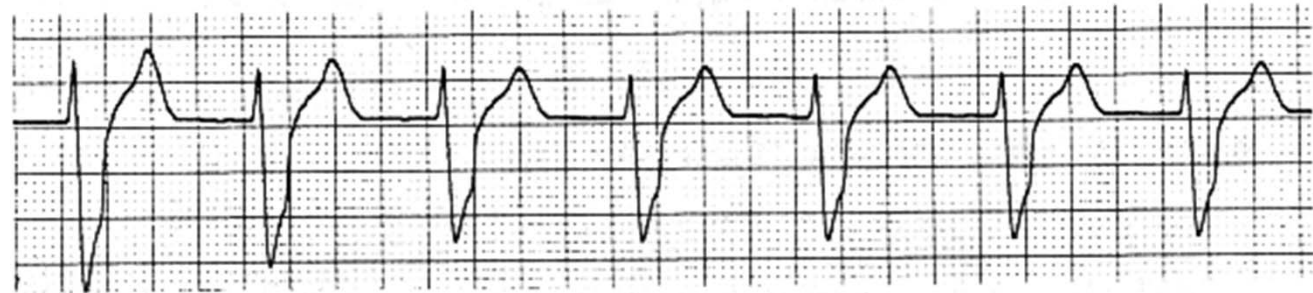


圖 7-18 加速型心室心律 (accelerated idioventricular rhythm, AIVR)



圖 7-4 心室頻脈 (ventricular tachycardia, VT)



# 窄QRS波(SA, A, AV)



圖 7-2 正常的心電圖

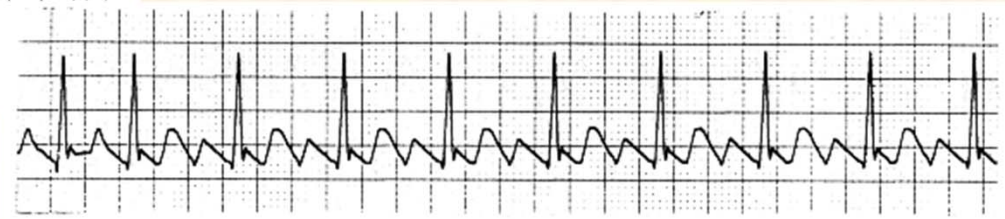


圖 7-7 心房撲動 (atrial flutter, AF)

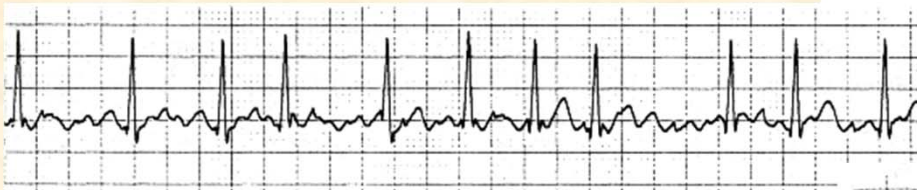


圖 7-9 心房顫動 (atrial fibrillation, Af)



圖 7-13 房室交界心律 (junctional rhythm)



圖 7-8 陣發性心室上頻脈 (paroxysmal supra-ventricular tachycardia, PSVT)



# 快速心律判讀準則與方法

**3-(1):正常(明顯) P波**

**(Sinus rhythm, A-V block)**

**3-(2):不同型P波**

**(Atrial Tachy-, Atrial flutter,  
MAT(Multifocal AT)(>3種P))**

**3-(3):沒有或不明顯的P波**

**(Asystole, Junctional rhythm,  
Idioventricular rhythm, Af)**



# 正常(明顯) P波



圖 7-2 正常的心電圖

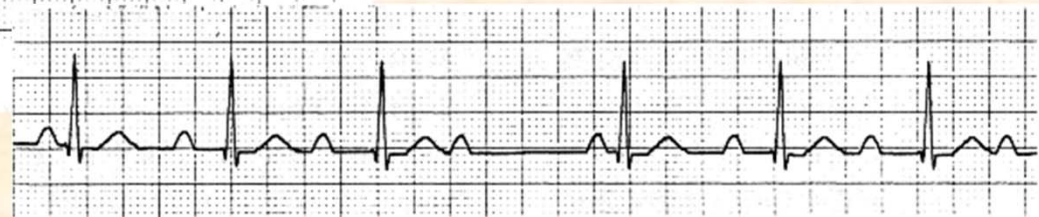


圖 7-15 第二度第一型房室阻斷 (2度 I 型 AV block)



圖 7-16 第二度第二型房室阻斷 (2度 II 型 AV block)

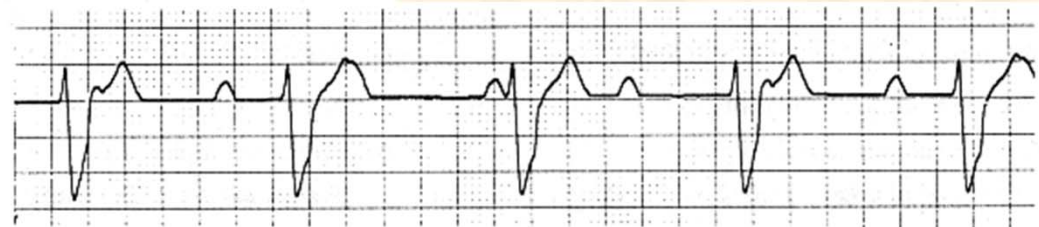
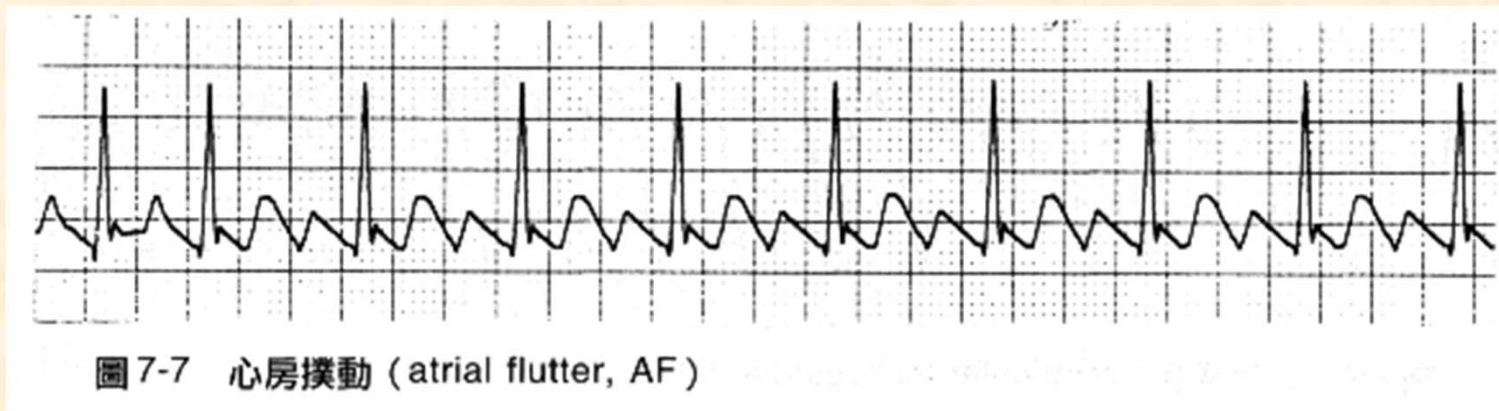


圖 7-12 第三度房室阻斷 (3° AV block)

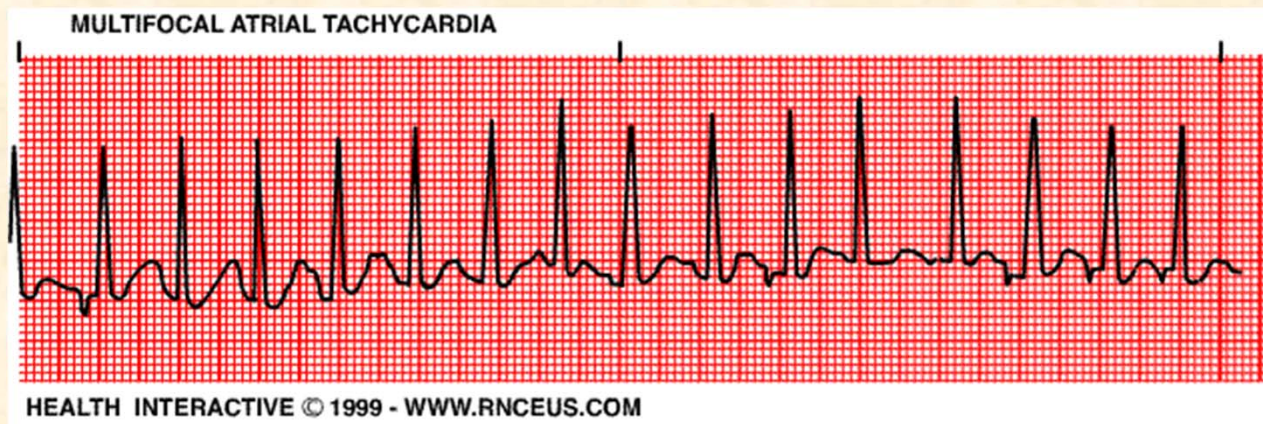




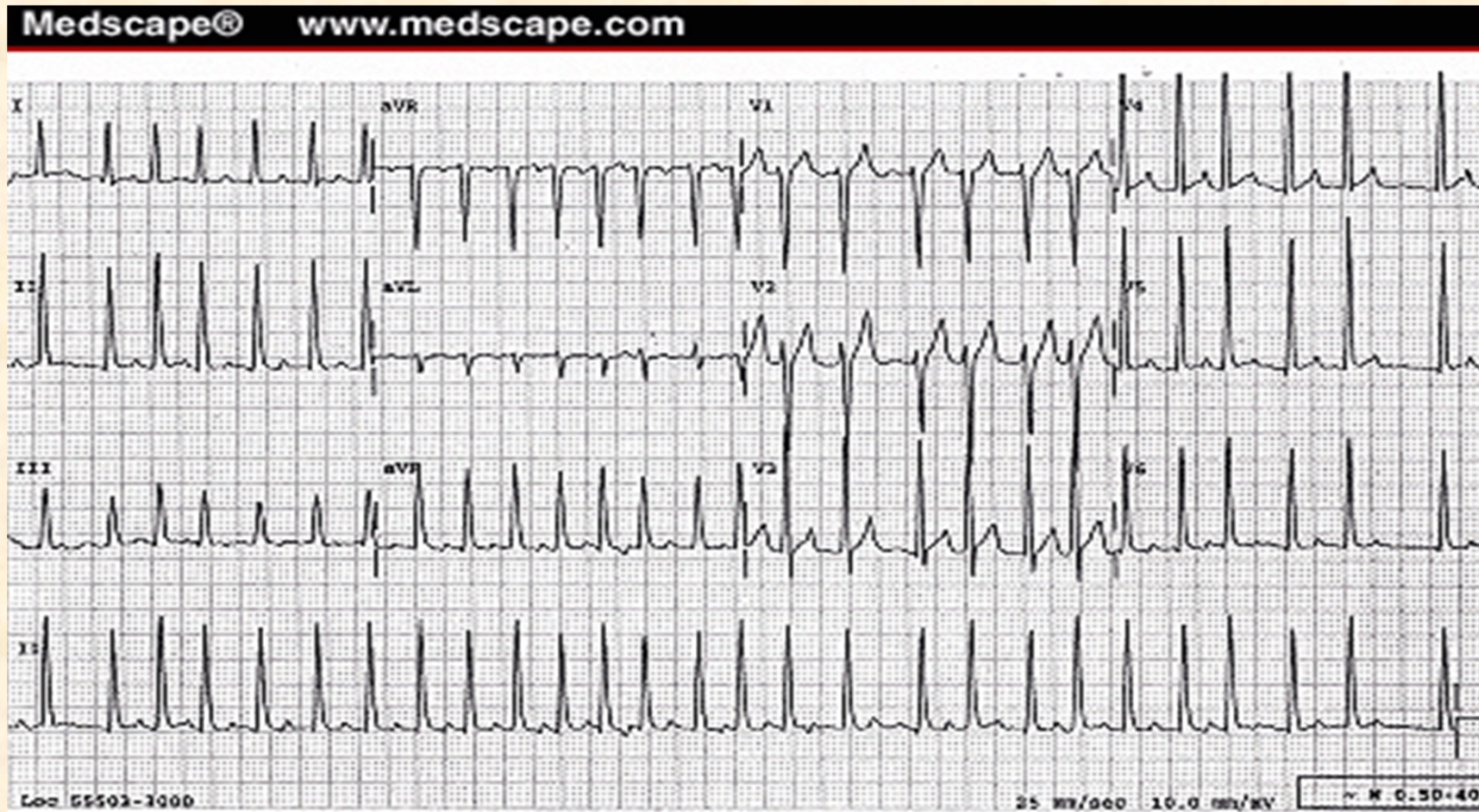
# 不同型P波



# 不同型P波 MAT



# 不同型P波 MAT





# 沒有或不明顯的P波

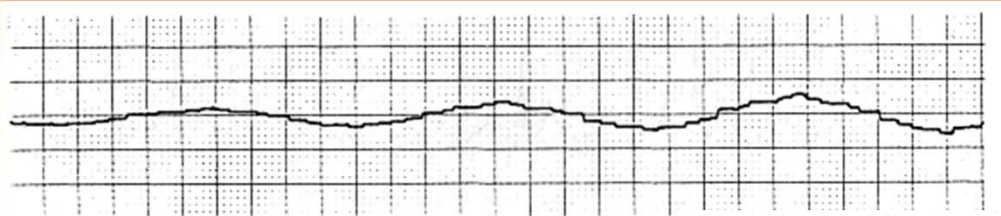


圖 7-10 心室停止 (ventricular asystole, VA)



圖 7-13 房室交界心律 (junctional rhythm)



圖 7-11 自發性心室心律 (idioventricular rhythm, IVR)



圖 7-9 心房顫動 (atrial fibrillation, Af)



# 快速心律判讀準則與方法

## 4-(1):規則心律

**(VT, PSVT, Sinus、Junct-rhythm,  
Idioventricular rhythm,  
1<sup>st</sup> & 3<sup>rd</sup> degree A-V block)**

## 4-(2):不規則心律

**(Af, MAT, APC, JPC, VPC,  
2<sup>nd</sup> degree A-V block, 分  
Mobitz type I & type II)**



# 規則心律



圖 7-2 正常的心電圖



圖 7-13 房室交界心律 (junctional rhythm)



圖 7-8 陣發性心室上頻脈 (paroxysmal supra-ventricular tachycardia, PSVT)



圖 7-12 第三度房室阻斷 (3° AV block)



# 規則心律



圖 7-11 自發性心室心律 (idioventricular rhythm, IVR)

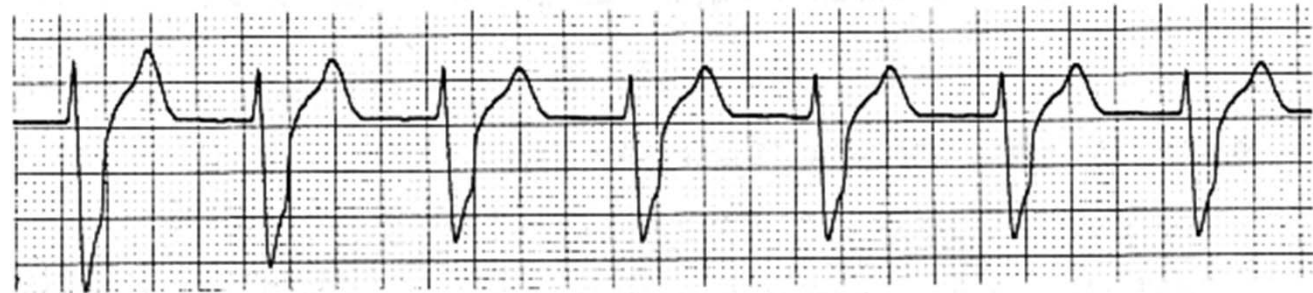


圖 7-18 加速型心室心律 (accelerated idioventricular rhythm, AIVR)



圖 7-4 心室頻脈 (ventricular tachycardia, VT)



# 不規則心律



圖 7-9 心房顫動 (atrial fibrillation, Af)



圖 7-15 第二度第一型房室阻斷 (2度I型 AV block)



圖 7-16 第二度第二型房室阻斷 (2度II型 AV block)

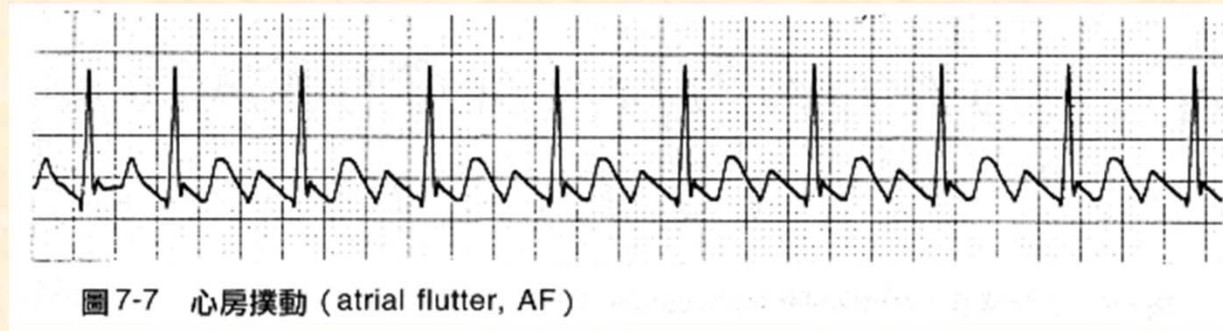




# 快速心律判讀準則與方法

## ● AF (atrial flutter)

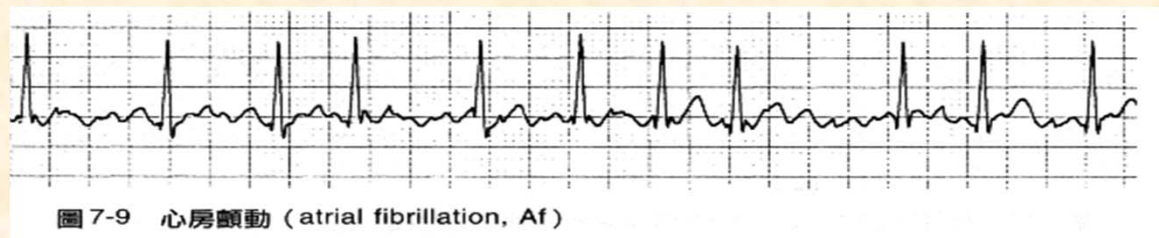
心房撲動 (P波呈鋸齒狀)



## ● Af ( atrial fibrillation )

心房顫動 (60/分<心跳<100/分)

(沒明顯P波(亂抖)，R-R不規則)



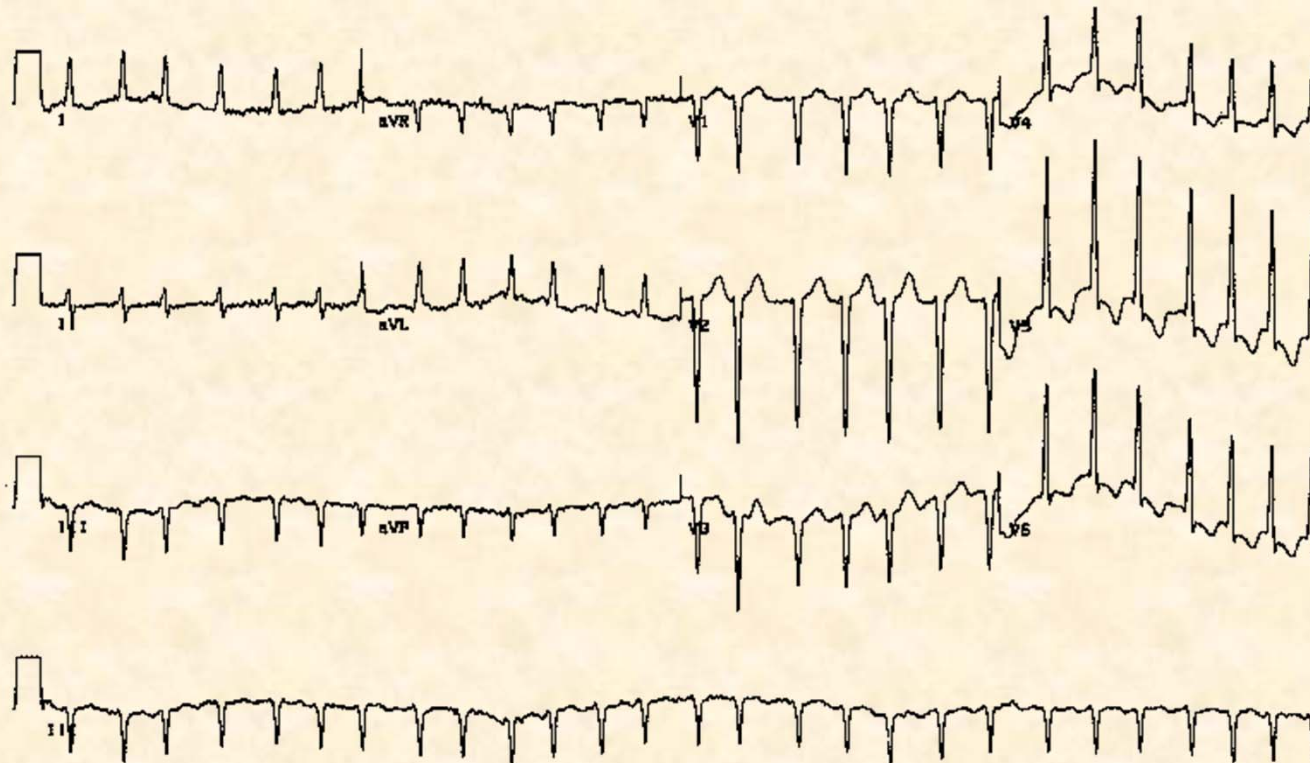


# 快速心律判讀準則與方法

- 1. Af with RVR (心跳 $>100$ /分)**  
**(rapid ventricular response)**  
心房顫動合併快速心室反應
  
- 2. Af with SVR (心跳 $<60$ /分)**  
**(slow ventricular response)**  
心房顫動合併慢速心室反應

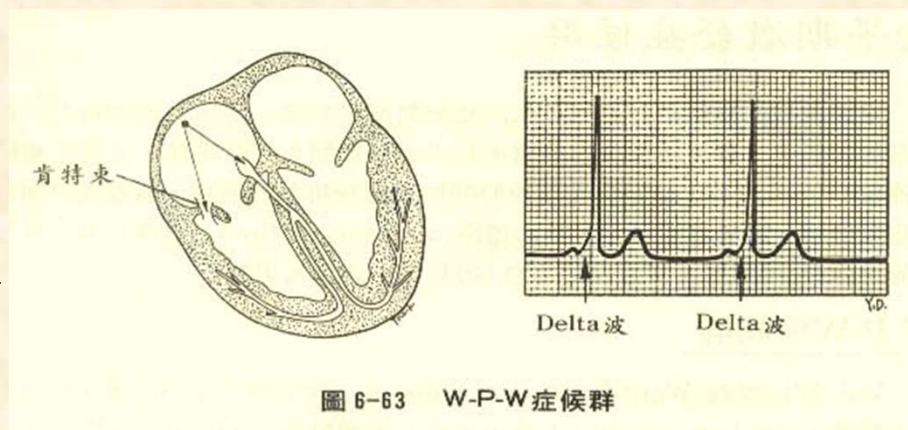


# Af with RVR



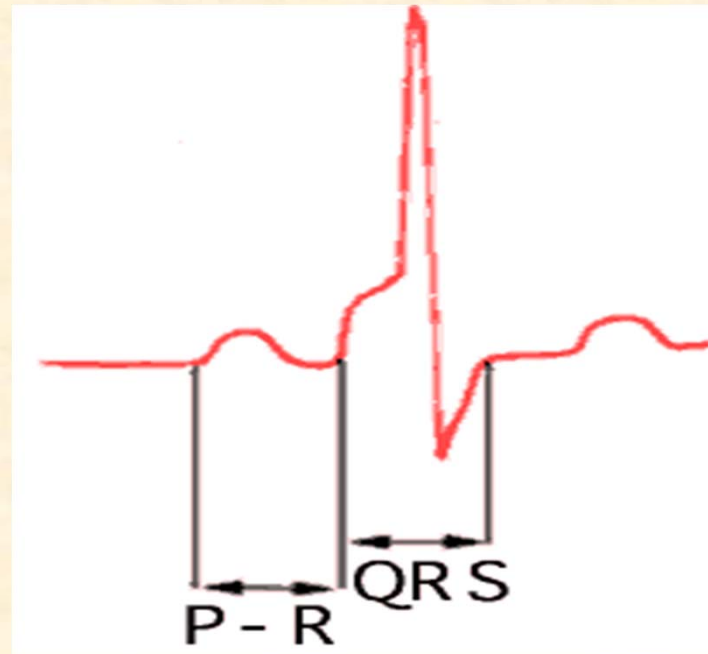
# WPW Syndrome

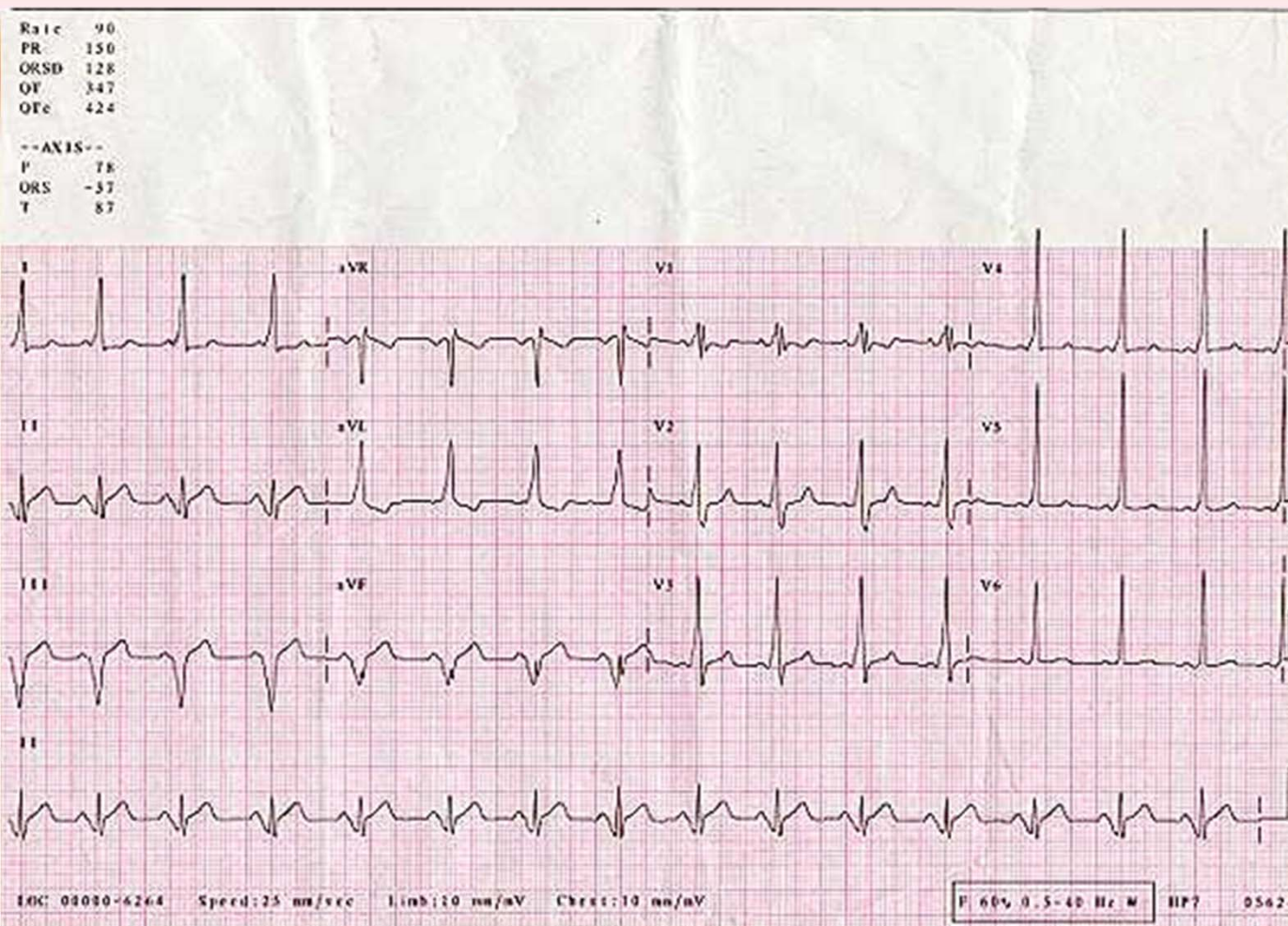
- ✿ Wolff-Parkinson-White Syndrome
- ✿ 先天性心臟異常，AV之間多一條輔助道路（肯特束），傳導路徑繞過AV node，心室提早被激活
- ✿ EKG特點：
  - PR interval < 0.12秒
  - QRS：緩慢上升的Delta波
  - 心搏過速



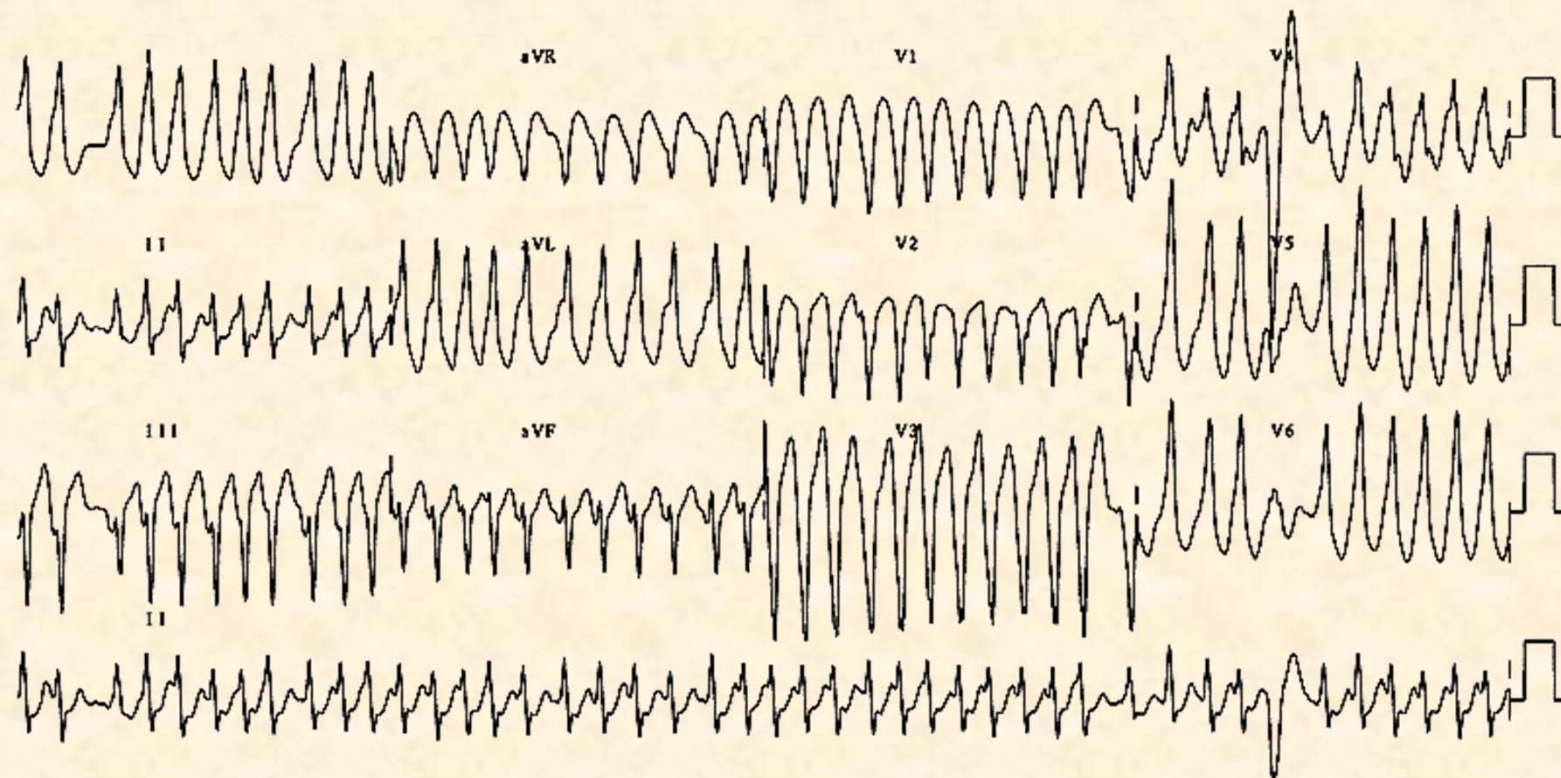


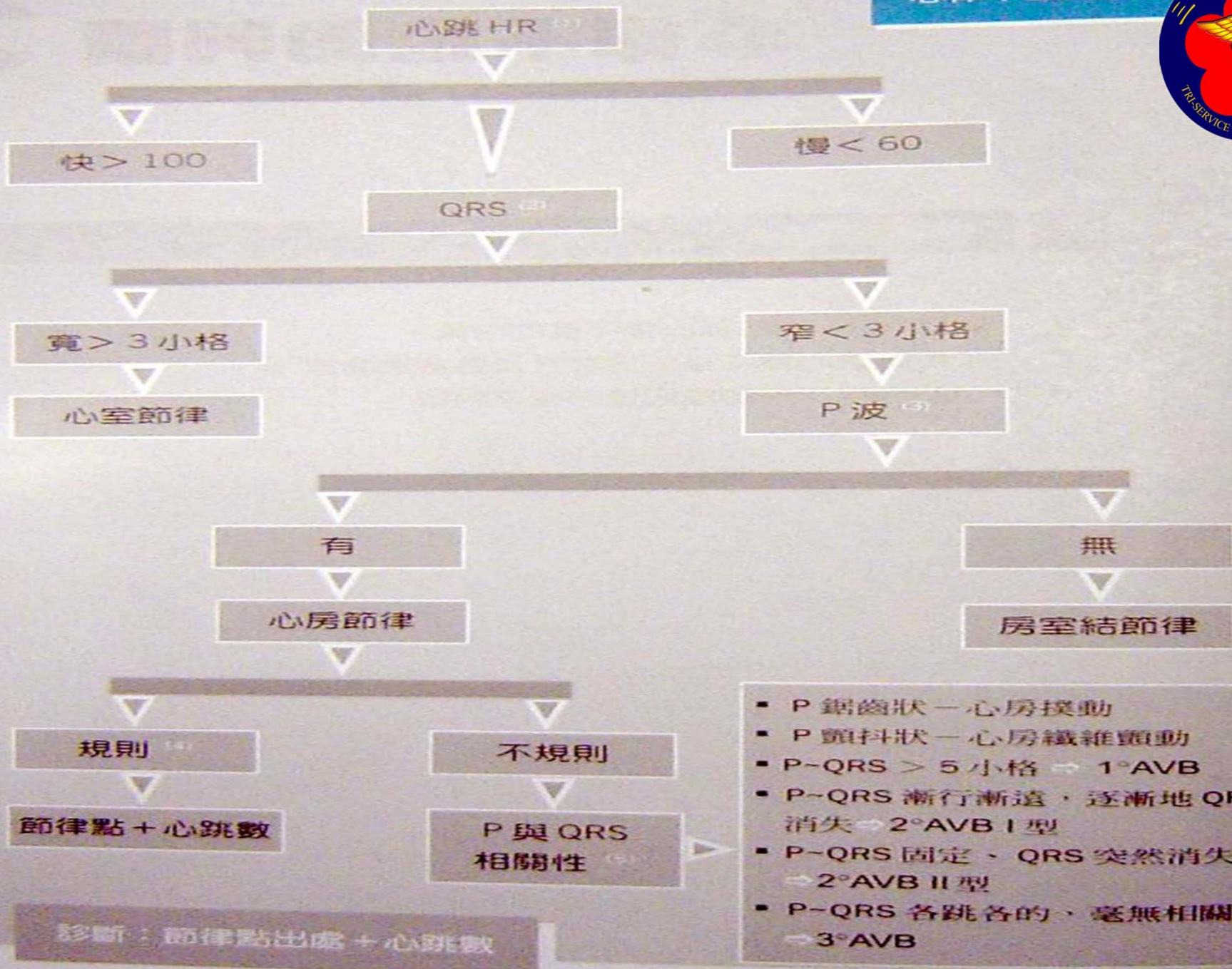
# WPW Syndrome





# WPW Syndrome with Af





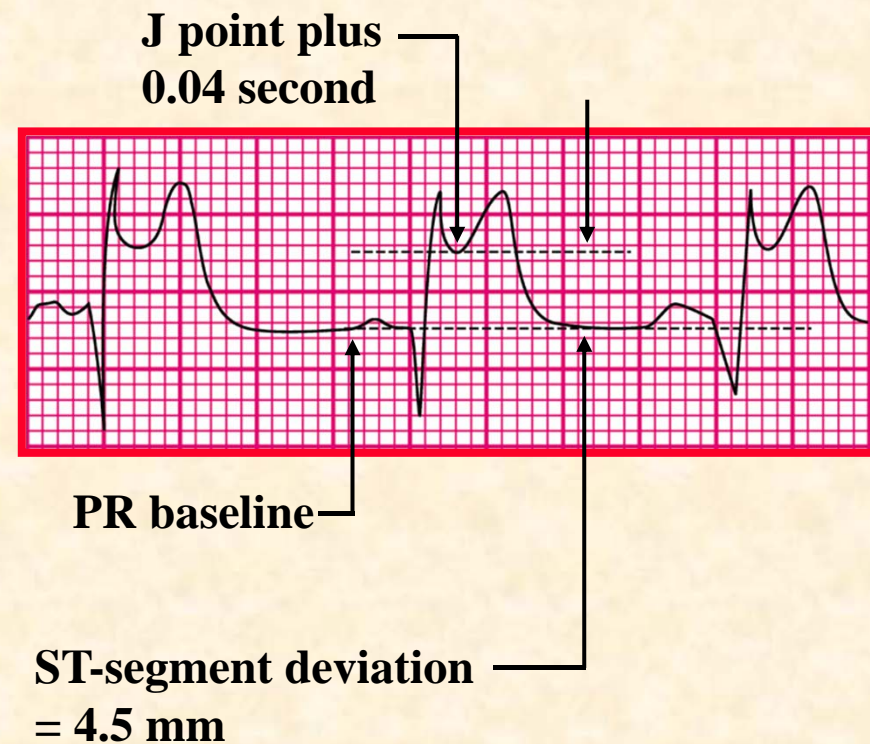
- P 鋸齒狀 - 心房撲動
- P 顫抖狀 - 心房纖維顫動
- P-QRS > 5 小格 → 1°AVB
- P-QRS 漸行漸遠，逐漸地 QRS 消失 → 2°AVB I 型
- P-QRS 固定，QRS 突然消失 → 2°AVB II 型
- P-QRS 各跳各的，毫無相關 → 3°AVB





# 了解急性心肌梗塞

- 知道如何尋找—
  - ST 升高  $>1$  mm
  - 連續三個導程





# 12導程心電圖變化



Baseline



缺血—tall or inverted T wave (infarct),  
ST segment may be depressed (angina)



損傷—elevated ST segment, T wave may invert

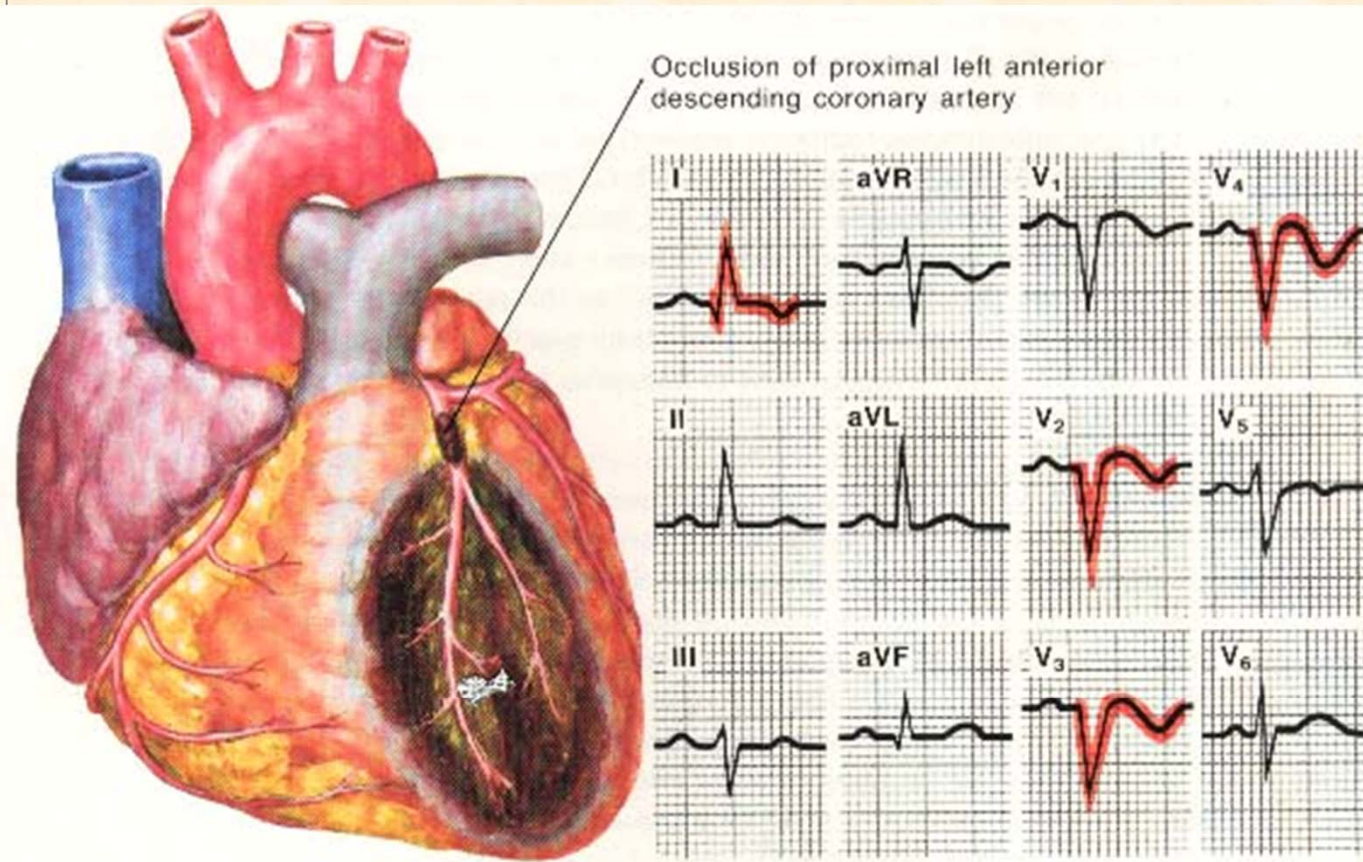


梗塞 (急性)—abnormal Q wave,  
ST segment may be elevated and T wave  
may be inverted



梗塞 (時間不知) —abnormal Q wave,  
ST segment and T wave returned to normal

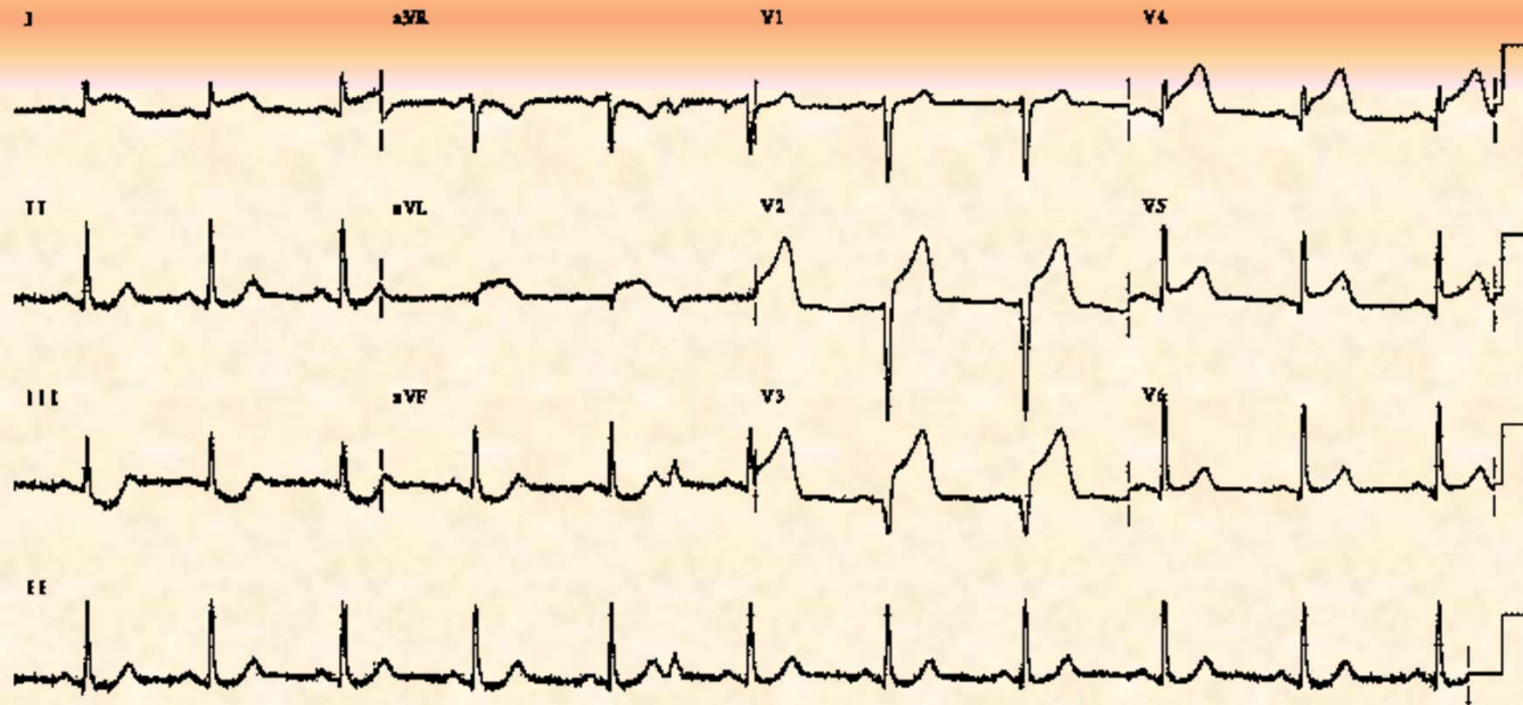
# 前壁心肌梗塞



Significant Q waves and T wave inversions in leads I, V<sub>2</sub>, V<sub>3</sub> and V<sub>4</sub>



# Acute Anterior Wall MI

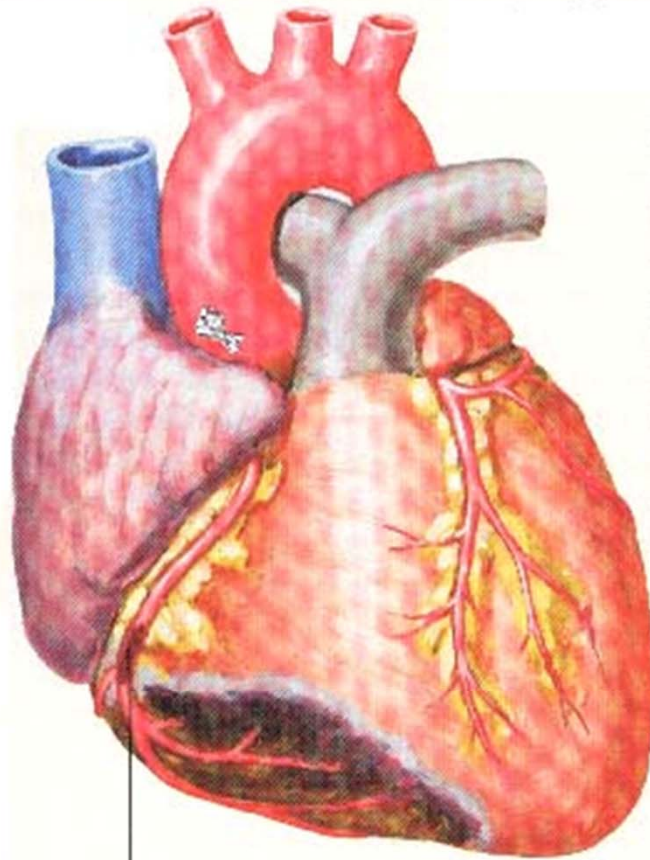


LOC 00000-0000 Speed:25 mm/sec Limb:10 mm/mV Chest:10 mm/mV

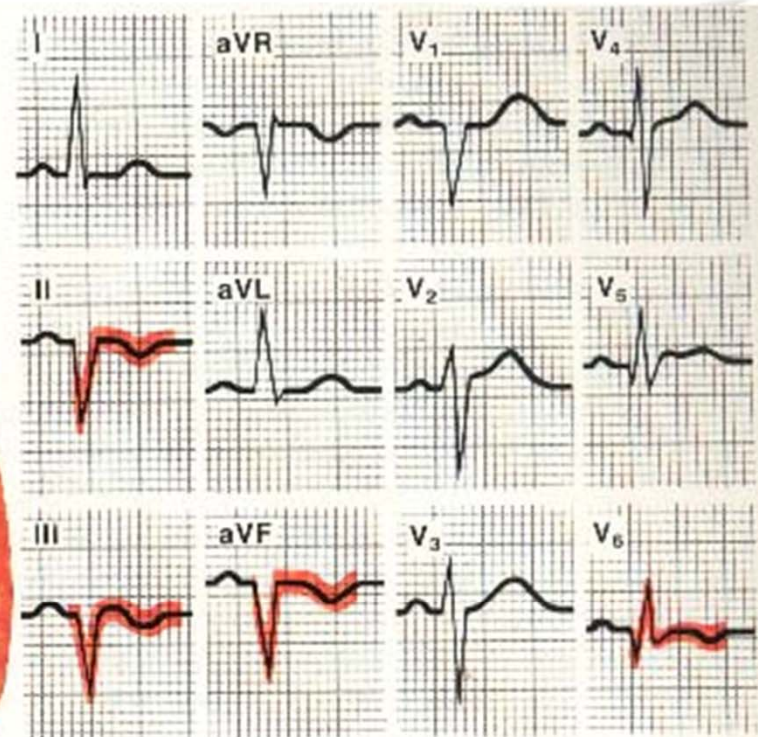
50% 0.15-150 Hz

25829

# 下壁心肌梗塞



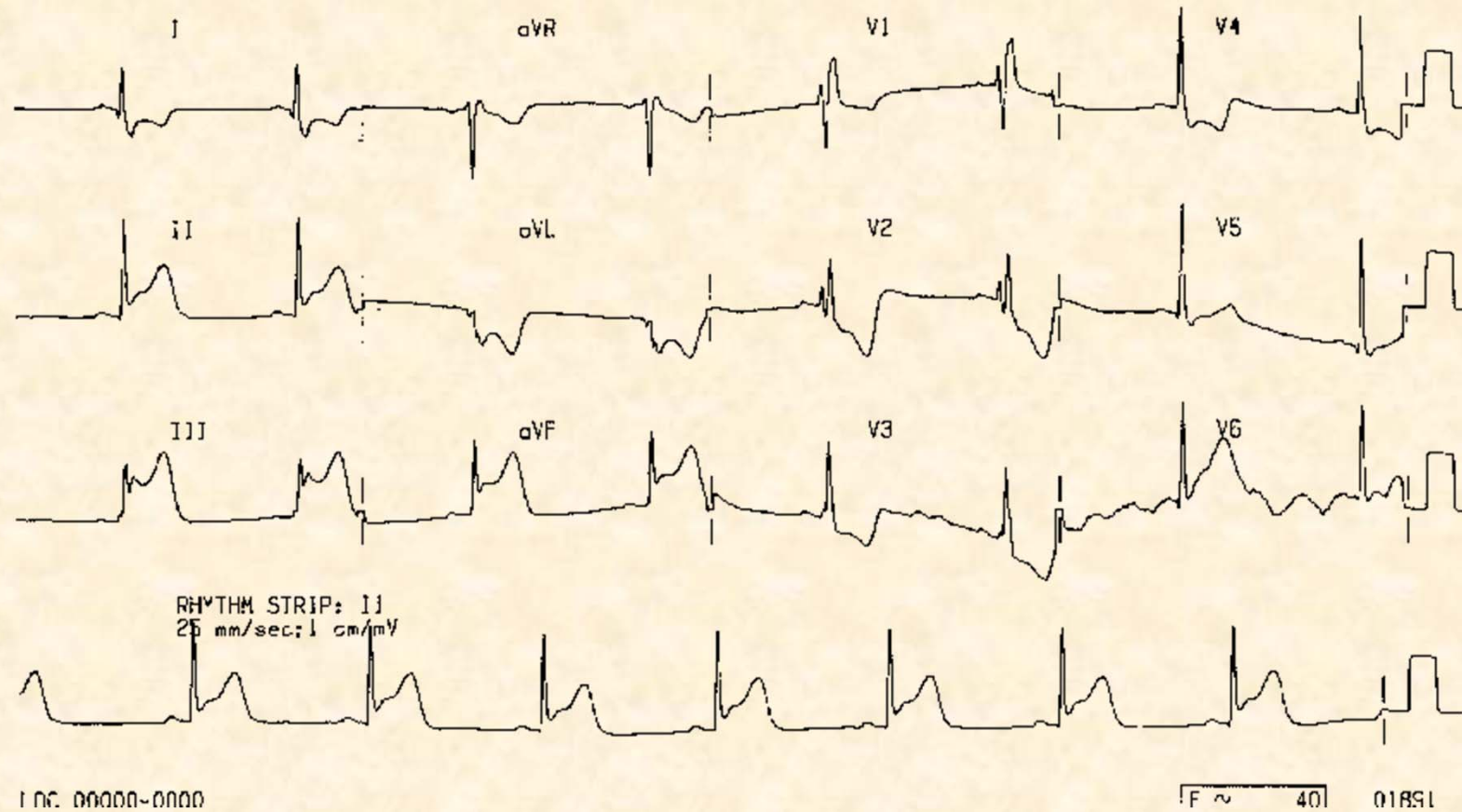
Occlusion of right coronary artery



Significant Q waves and T wave inversions in leads II, III and aVF. With lateral damage, changes also may be seen in leads V<sub>5</sub> and V<sub>6</sub>

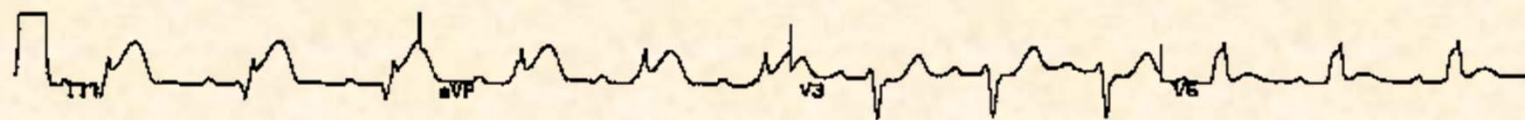
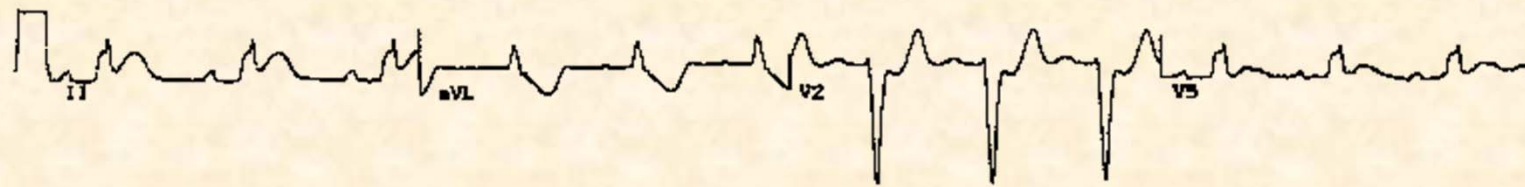
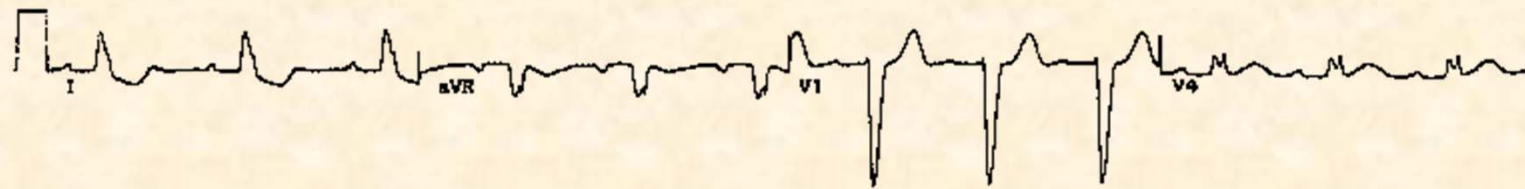


# Acute Inferior Wall MI



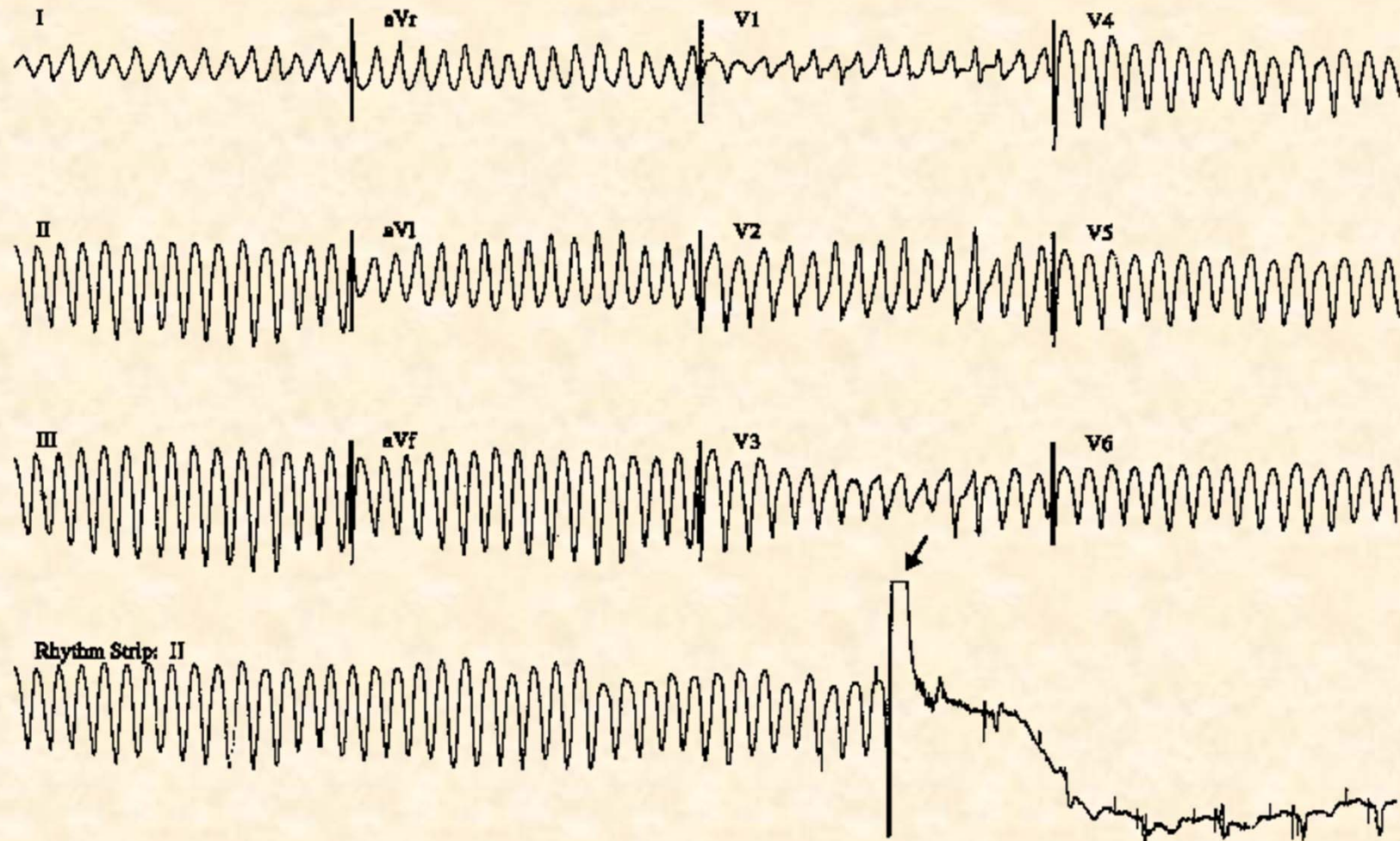


# Acute myocardial infarction in the presence of left bundle branch block





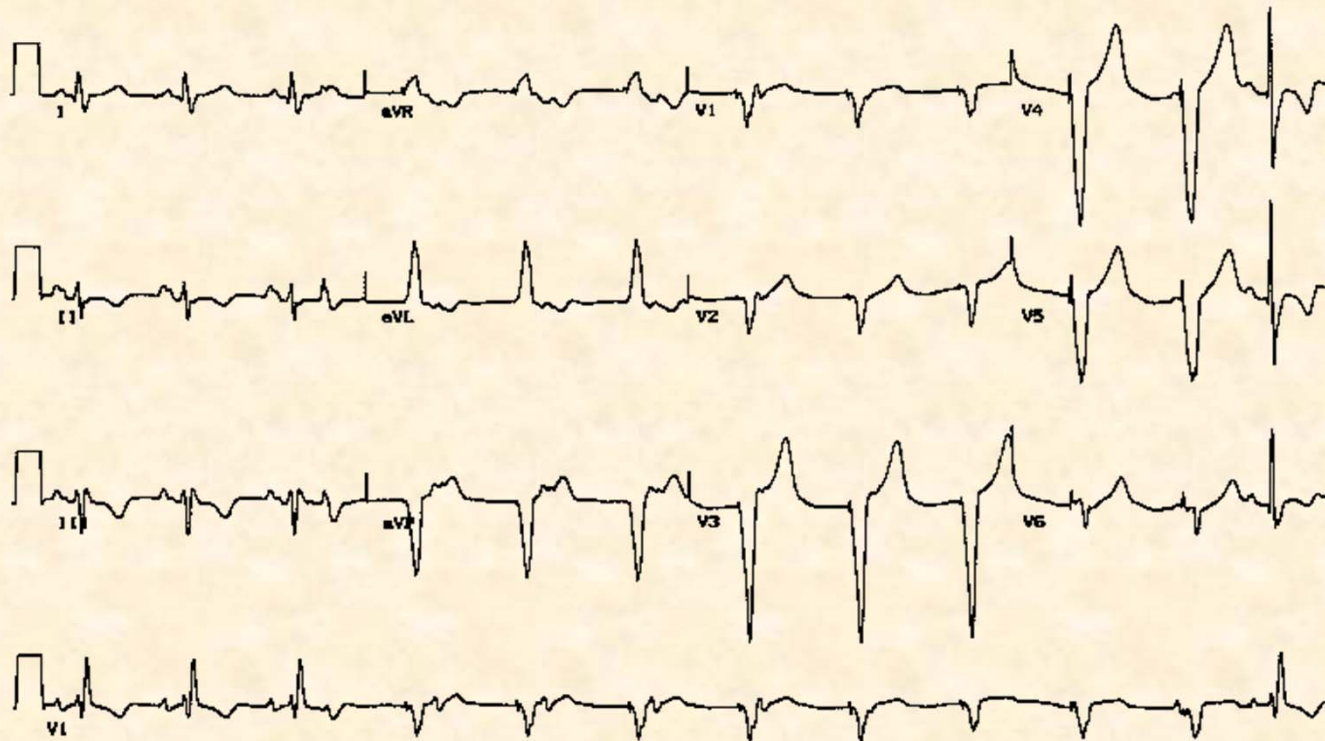
# Polymorphic VT





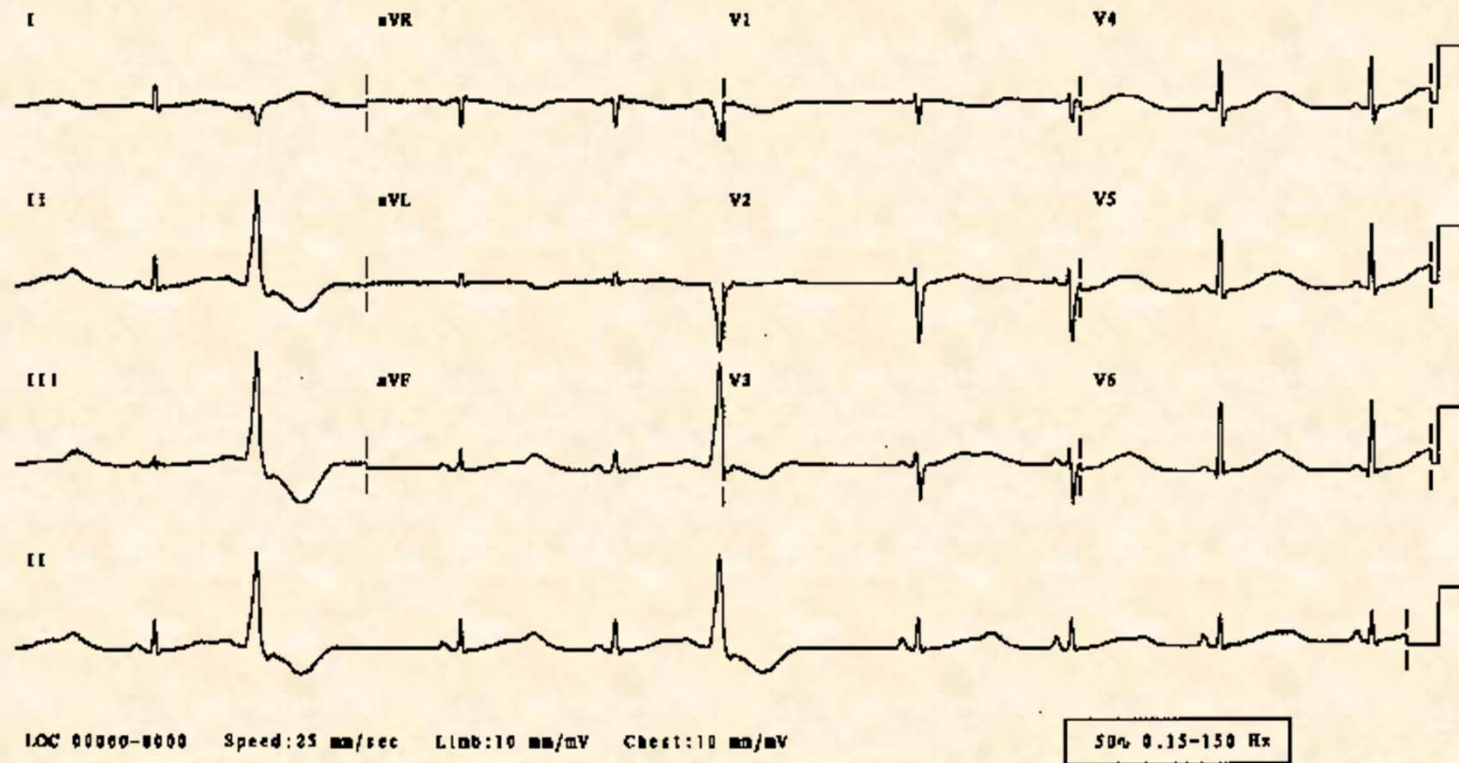


# Ventricular Pacemaker





# Long Q-T interval





# Junctional rhythm

