核心課程編號：B11

心悸

心臟內科 劉俊廷醫師

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學習目標

PGY	UGY
知識 判別不同原因心悸之緊急性 各種原因心悸的相關處置 心律不整的診斷流程 心律不整的治療 技能 1. 心臟復律術（cardioversion）	知識 心悸的原因和病理生理機制 心悸的診斷流程 心電圖和心律監視器紀錄的判讀 技能 心悸相關的病史詢問 心悸相關的身體檢查

Introduction

- Palpitations: extremely common
- Definition:
  - an intermittent "thumping," "pounding," or "fluttering" sensation in the chest.
- Patient’ s interpretation:
  - an unusual awareness of the heart beat
  - "skipped" or "missing" heart beats.

- Onset:
  - either intermittent or sustained
  - either regular or irregular
  - often noted when quietly resting
- If precipitated by positional change, reflect a structural process
  - Within the heart (e.g., atrial myxoma)
  - Adjacent to the heart (e.g., mediastinal mass)

General Considerations

- **Sometimes overvalued**:
- Clinicians sometimes pursue expensive and invasive testing
- **Sometimes overlooked**:
- In one study, 54% of patients with SVT were initially misdiagnosed with panic, stress, or anxiety disorder.
- A disproportionate number of these misdiagnosed patients are **women**.

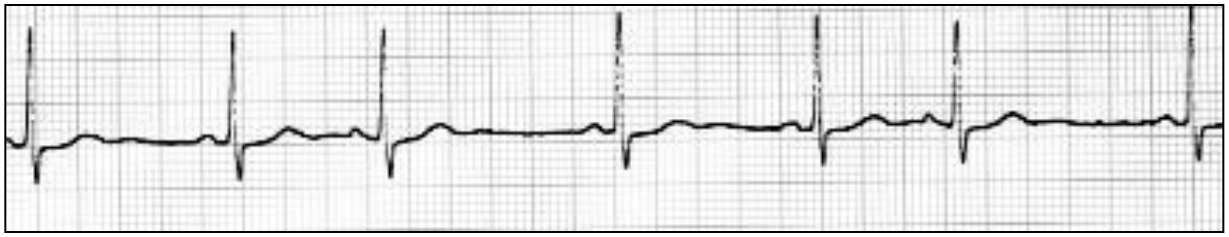
Causes of palpitation

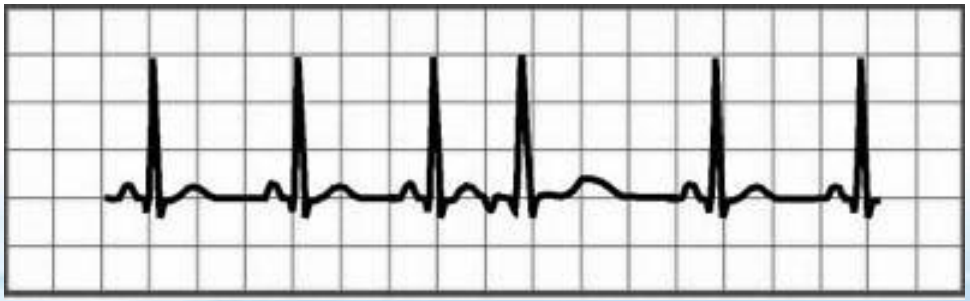
- Cardiac (43%)
- Psychiatric (31%)
- Miscellaneous (10%)
- Unknown (16%)

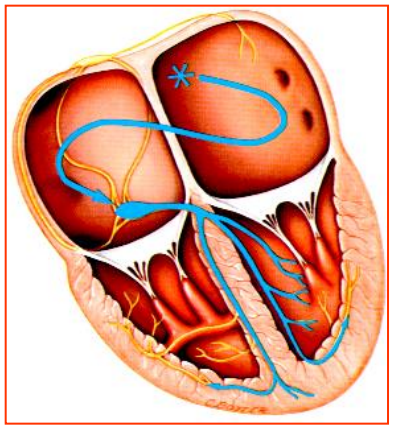
Causes - cardiac

- Cardiac (43%)
  - Premature atrial and ventricular contractions (postextrasystolic potentiation)
  - Supraventricular and ventricular arrhythmias
    - Regular, sustained palpitations → SVT and VT:
    - Irregular, sustained palpitations → Atrial fibrillation.
  - Mitral valve prolapse
  - Aortic regurgitation
    - Eenlarged ventricle
    - hyperdynamic precordium
  - Atrial myxoma

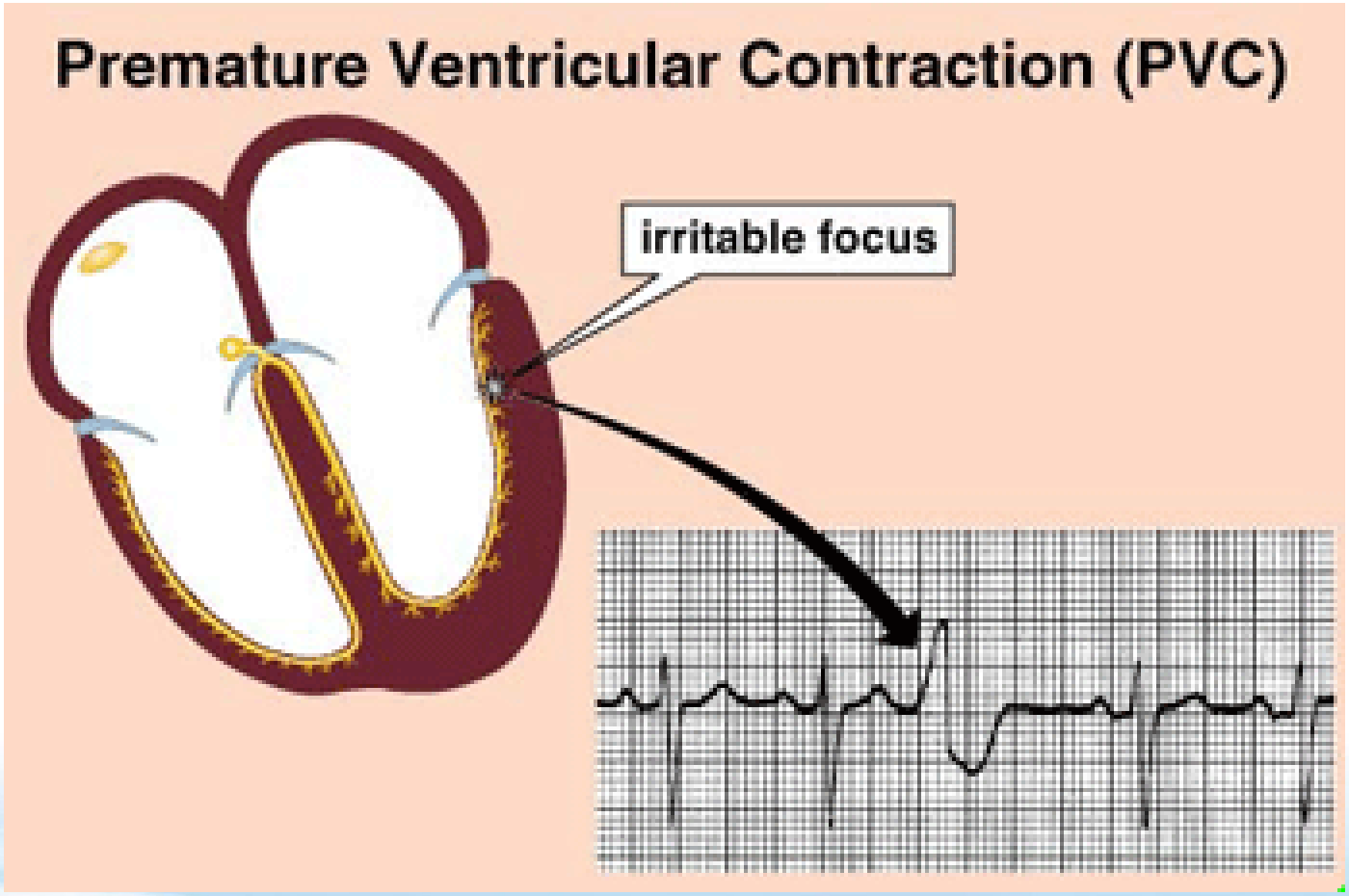
Atrial premature beat



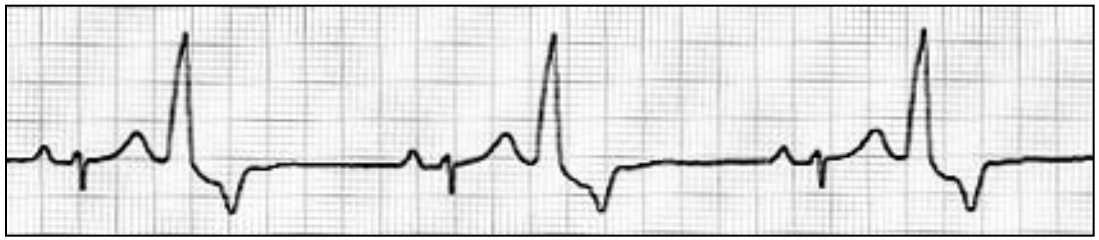




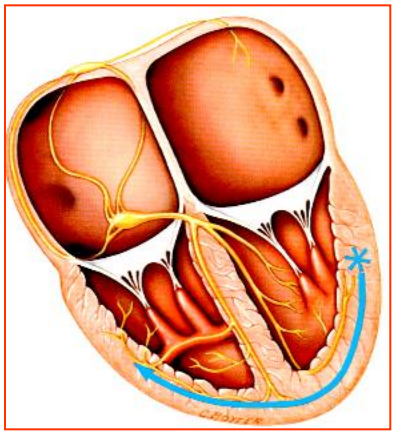
Ventricular premature complex (VPC)

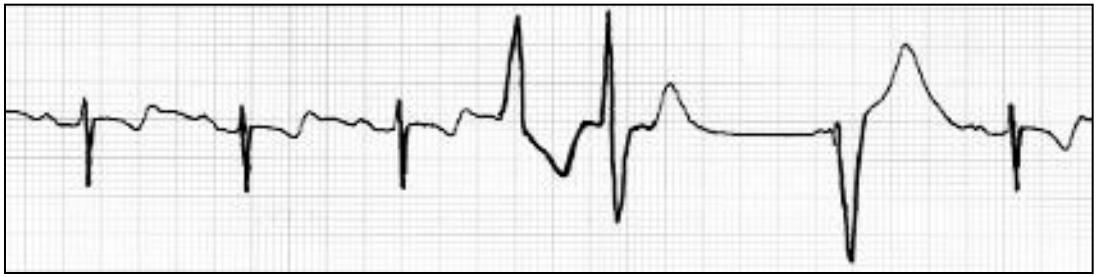


Ventricular premature complex (VPC)

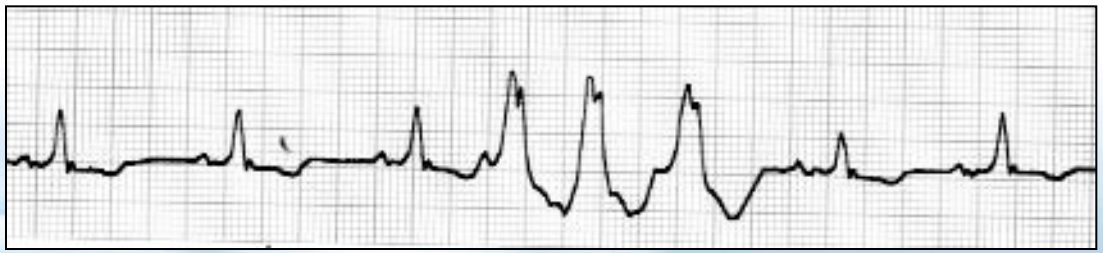


Bigeminal VPCs





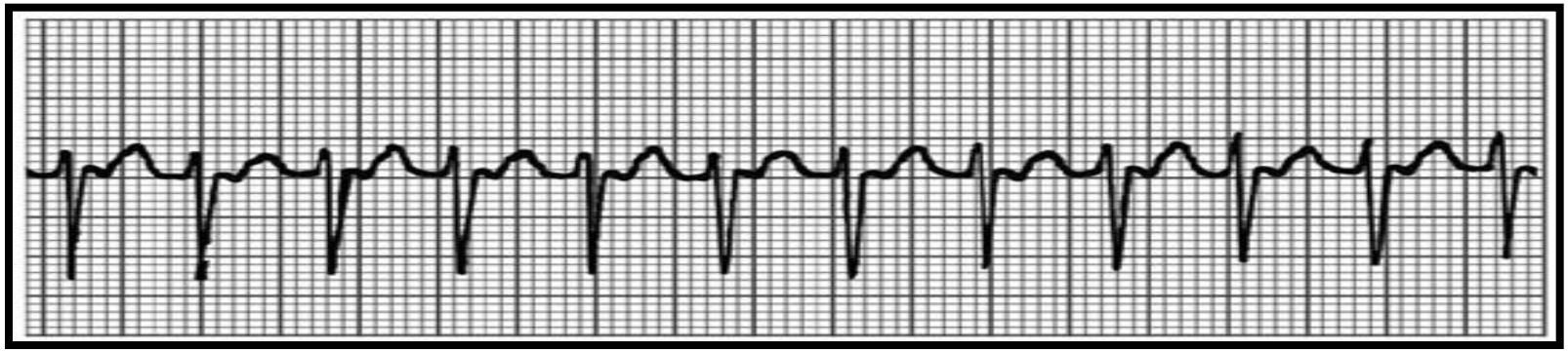
Multifocal VPCs

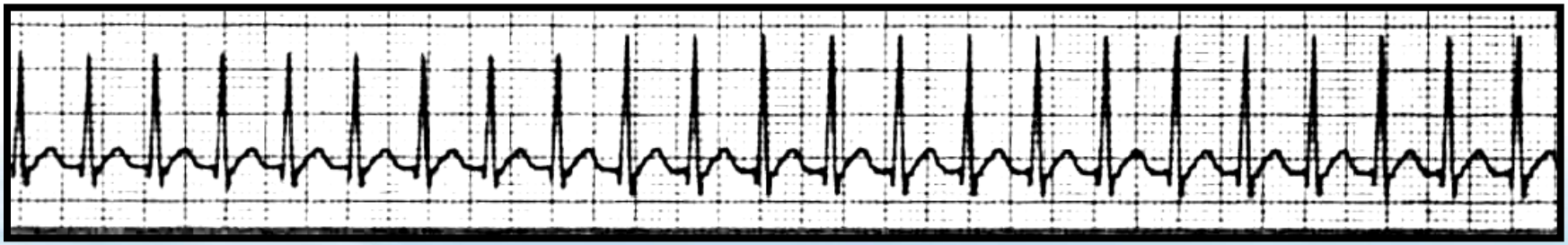


Short run VT

EKG Diagnosis

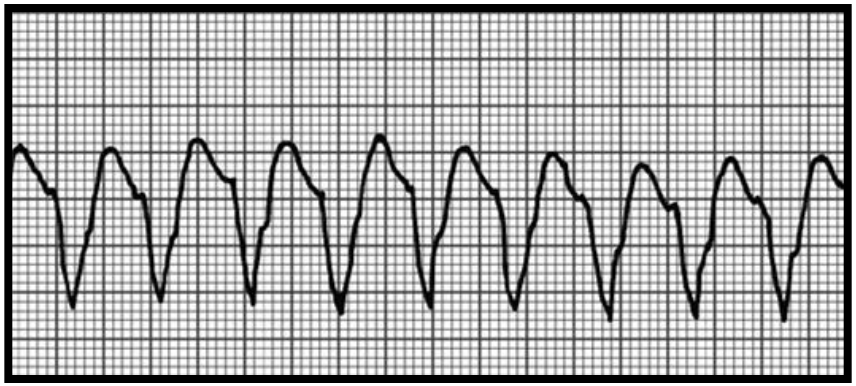
PSVT

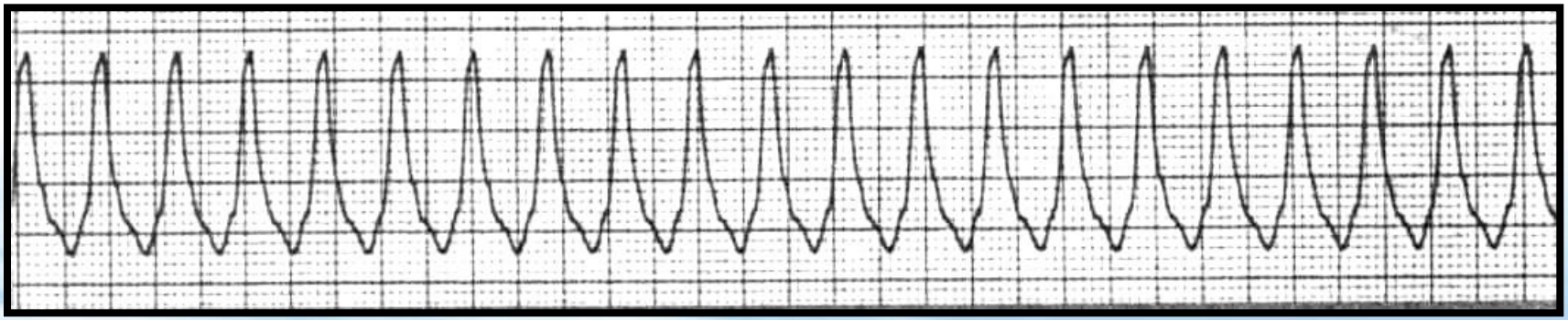




EKG Diagnosis

Ventricular tachycardia





EKG Diagnosis

Tosades de poin

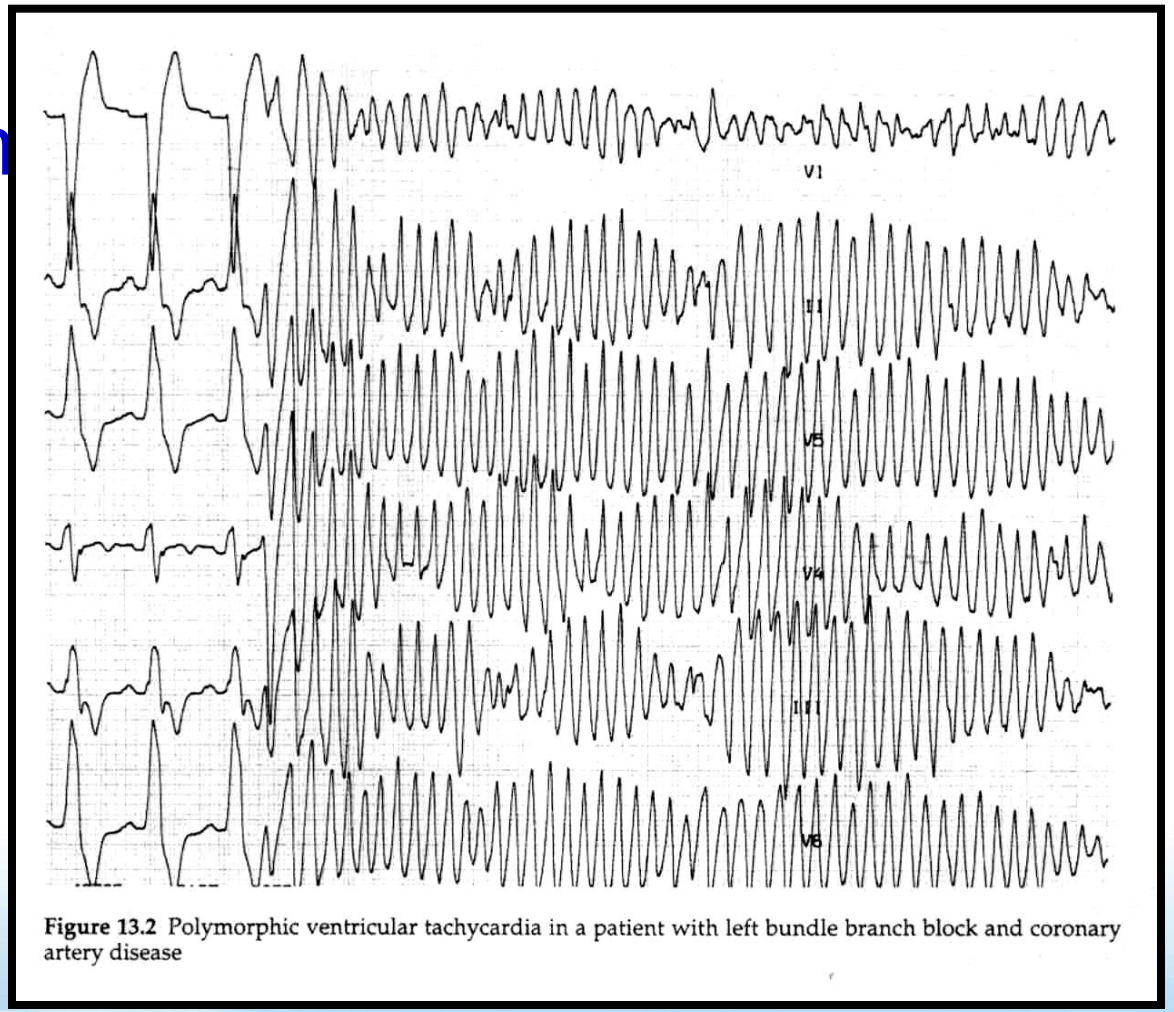


Figure 13.2 Polymorphic ventricular tachycardia in a patient with left bundle branch block and coronary artery disease

EKG Diagnosis

Tosades de point

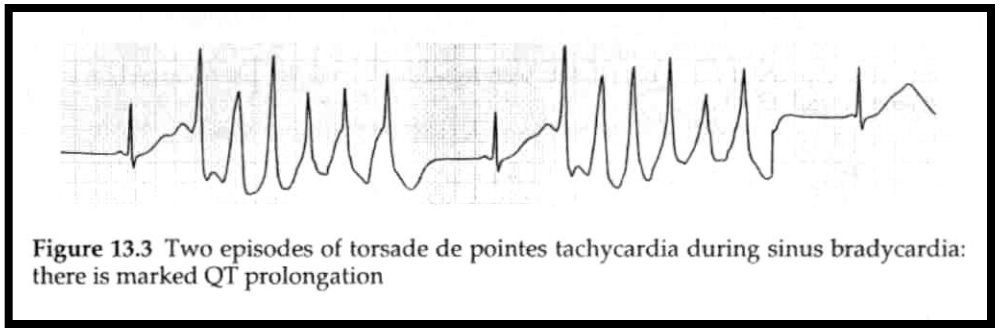


Figure 13.3 Two episodes of torsade de pointes tachycardia during sinus bradycardia: there is marked QT prolongation

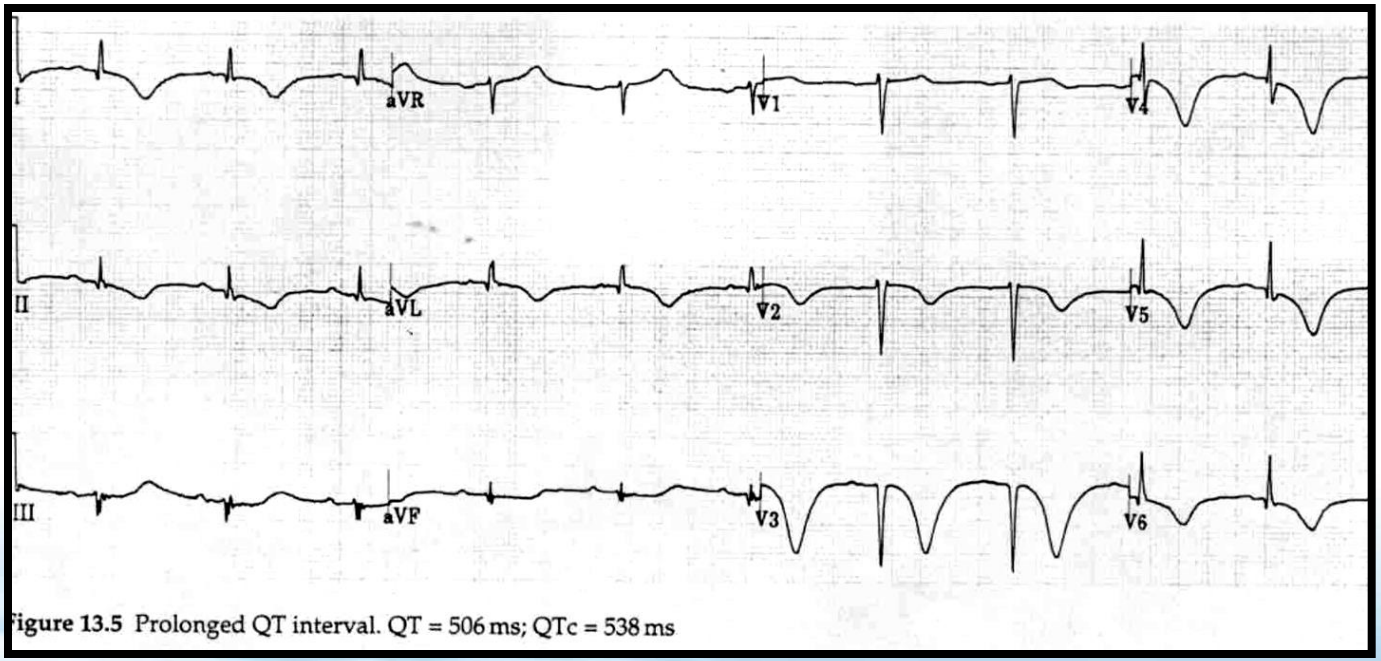
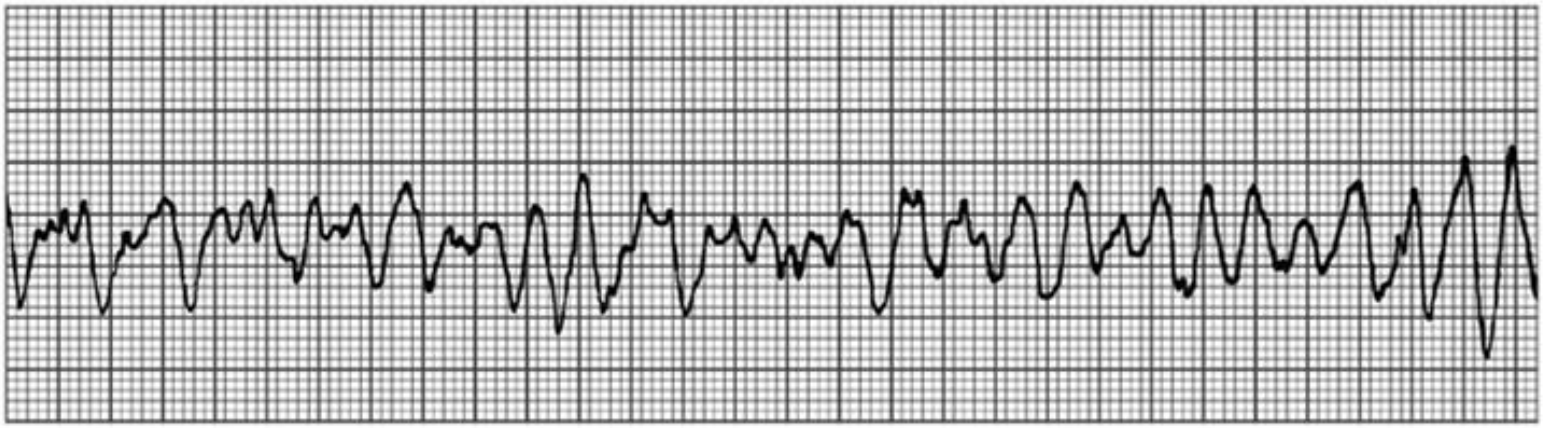
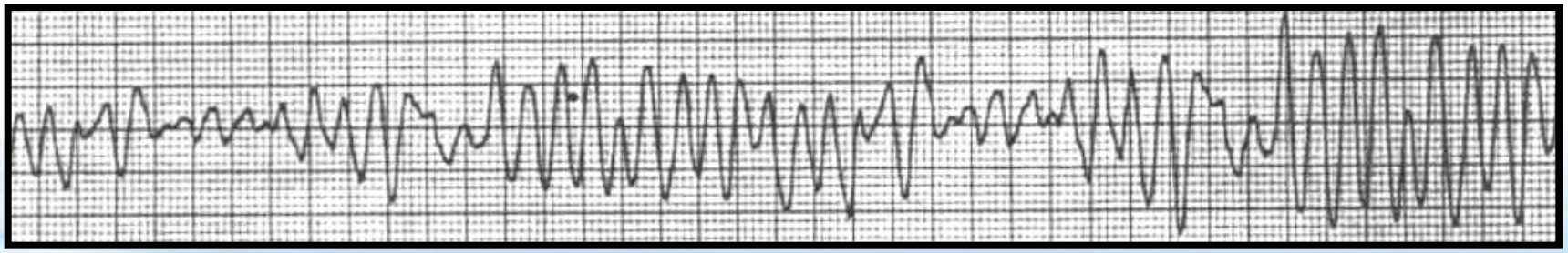


Figure 13.5 Prolonged QT interval. QT = 506 ms; QTc = 538 ms

EKG Diagnosis

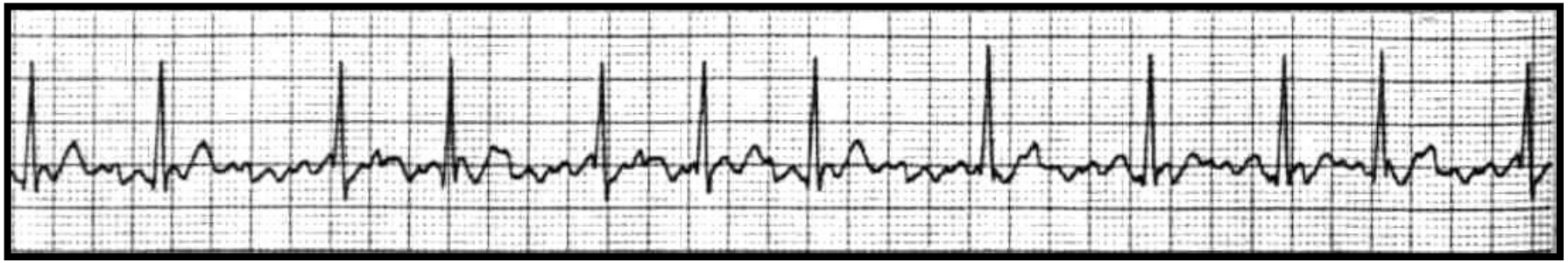
VF





EKG Diagnosis

Atrial fibrillation



Causes - cardiac

- Most arrhythmias are “not” associated with palpitations.
- Ask the patient to
  - "tap out" the rhythm of the palpitations
  - Take his or her pulse while palpitations are occurring

Causes - psychiatric

- Psychiatric (31%)
  - Panic attack or disorder
  - Anxiety states
  - Somatization
  - Alone or in combination
- Characteristics:
  - Longer duration of the sensation (>15 min)
  - More other accompanying symptoms

Causes - miscellaneous

- Miscellaneous (10%)
  - Hyperdynamic states (Catecholamine)
    - Eexercise, stress, or pheochromocytoma
  - Thyrotoxicosis
  - Enhance contraction strength
    - Tobacco, caffeine, aminophylline, atropine, thyroxine, cocaine, and amphetamines
  - Drugs (see above) and ethanol
  - Spontaneous skeletal muscle contractions of the chest wall

Causes - unknown

- Unknown (16%)

Approach to the patient

- Principal goal: exclude life-threatening arrhythmia
- Ventricular arrhythmias:
  - Patients with CAD or risk factors for CAD
  - Associated with hemodynamic compromise: syncope or lightheadedness
- Sustained tachyarrhythmias + CAD → angina pectoris or dyspnea.
- Sustained tachyarrhythmias + ventricular dysfunction (systolic or diastolic), AS, HCM, or MS, with or without CAD → Dyspnea (LA pressure↑)

History Taking

Essential Inquiries

- Forceful, rapid, or irregular beating of the heart.
- Rate, duration, and degree of regularity of heart beat.
- Age at first episode.
- Factors that precipitate or terminate episodes.
- Light-headedness or syncope.
- Chest pain.

History Taking

- Sustained tachyarrhythmias+ CAD angina pectoris or dyspnea.
- Sustained tachyarrhythmias+ ventricular dysfunction (systolic or diastolic), AS, HCM, or MS, with or without CAD Dyspnea(LA pressure↑)

History Taking

- **Palpitations**+ chest pain ischemic heart disease
- if the chest pain is relieved by leaning forward pericardial disease
- **Palpitations**+ light-headedness, presyncope, or syncope hypotension life-threatening cardiac arrhythmia.
- **Palpitations**on exertion rate-dependent bypass tract or hypertrophiccardiomyopathy.

3 common descriptions of palpitations

- flip-flopping" (or "stop and start")
- Often by premature contraction
- "stop" from the pause following the contraction
- "start" from the subsequent forceful contraction
- Rapid "fluttering” in the chest
- Regular SVT or VT (including sinus tachycardia)
- Irregular atrialfibrillation, atrialflutter, or tachycardia with variable block
- "pounding in the neck" or neck pulsations
- "cannon" A waves in the jugular venous pulsations
- occur when the RA contracts against a closed TV.

Physical examination

- Key features of the PE that will help confirm or refute the presence of an arrhythmia:
  - Measurement of the vital signs
  - Assessment of the jugular venous pressure and pulse
  - Auscultation of the chest and precordium.

Physical examination

- MVP (mitralvalve prolapse): The midsystolicclick of mitralvalve SVT.
- HOCM (hypertrophiccardiomyopathy): harsh holosystolicmurmur, occuringalong the left sternalborder and increases with the Valsalvamaneuver Afor VT.
- DCM (dilated cardiomyopathy): a displaced and enlarged cardiac point-of-maximal impulse VT and Af.

Physical examination

- Chronic atrialfibrillation, in-office exercise (eg, a brisk walk in the hallway) may reveal an intermittent accelerated ventricular response as the cause of the **palpitations**.
- Signs of hyperthyroidism:
- Tremulousness
- brisk deep tendon reflexes
- fine hand tremor
- Signs of stimulant drug use (such as dilated pupils or skin or nasal septallesions).

Diagnostic tools

- Resting EKG
- Exercise EKG (if induced by exercise)
- If infrequent episodes:
  - Holter EKG monitoring
  - Telephonic monitoring
  - Loop recordings (external or implantable)

High-risk patients

- A step-wise approach
- Ambulatory monitoring devices:
- Holtermonitoring if expected to occur within 72h
- Event monitoring if less frequent
- Invasive electrophysiologictesting if:
- Ambulatory monitor records a worrisome arrhythmia
- Strongly suspected serious arrhythmias despite normal findings on an appropriate ambulatory monitor.

Patients at high risk for a CV cause

- **Historical risk factors**
- Family history of significant arrhythmias
- Personal or family history of syncope or resuscitated sudden death
- History of myocardial infarction (and likely scarred myocardium)
- **Physical examination findings**
- Structural heart disease such as dilated or hypertrophiccardiomyopathies
- Valvulardisease (stenoticor regurgitant)
- **ECG findings**
- Long QT syndrome
- Bradycardia
- Second-or third-degree heart block
- Sustained ventricular arrhythmias

Patients at high risk for a CV cause

- Prior myocardial infarction:
- ambulatory cardiac monitoring or signal-averaged-ECG are appropriate next steps to assess ventricular tachycardia.
- ECG exercise testing
- **palpitations**on exertion and patients with CAD.
- Echocardiography:
- structural abnormalities
- decreased ventricular function.

Treatment

- In very symptomatic patients, a trial of a β-blocker may be prescribed for benign APCsor VPCs
- Abstention from Caffeine, alcohol, tobacco, or illicit drugs
- Considering alternative therapies if pharmacologic agents causing palpitation

- Psychiatric cause: cognitive or pharmaco-therapies.
- Empathy: Physician should note that palpitations are bothersome and, on occasion, frightening to the patient.
- Reassurance: palpitations will not adversely affect patient’ s prognosis (after excluding serious causes)

Prognosis

- Most patients do not have serious arrhythmias or underlying structural heart disease
- Occasional benign APCs or VPCs : beta blocker therapy if sufficiently troubling to the patient
- Abstention of alcohol, tobacco, or illicit drugs
- Considering alternative therapies if pharmacologic agents causing palpitatoin

When to Refer

- For electrophysiologicstudies.
- For advice regarding treatment of atrialor ventricular arrhythmias.

When To Admit

- **Palpitations**+
- syncope or near-syncope, particularly when the patient is aged 75 years or older
- has an abnormal ECG
- hematocrit< 30%
- shortness of breath, respiratory rate > 24/min
- a history of CHF.
- Patients with risk factors for a serious arrhythmia