Structured Notes According to

MEDICINE

Revision friendly **Fully Colored Book/Structured Notes**

For Best results, watch the video lectures along with reading notes

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In case of any discrepancy between book and videos, Dr. Deepak Marwah's videos on PrepLadder should be considered.

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MEDICINE VOLUME 1

UNIT 1 - CARDIOLOGY

UNIT 2 - EMERGENCY MEDICINE

UNIT 3 - ENDOCRINOLOGY

UNIT 4 - NEPHROLOGY

UNIT 5 - GASTROINTESTINAL SYSTEM

SYNOPSIS

CARDIOLOGY

Mitral Valve Prolapse with Animation

1. Mid Systolic Click
2. MVP
   - 2.1 Causes
   - 2.2 Clinical Presentation
3. **Rhythm Disorder** — **Must Know**
   - 3.1 Examination Findings
   - 3.2 IOC
   - 3.3 Treatment

Percutaneous Coronary Intervention

1. **Primary PCI (Balloon Angioplasty)** — **Good to Know**
2. Drug Eluting Stents (DES)
3. Summary

Heart Sounds 1

1. **Abnormal Heart Sounds** — **Good to Know**
2. Atrial Myxoma
   - 2.1 Clinical Scenario
3. Papillary Elastoma
4. Tubercular Pericarditis
5. Summary

Heart Sounds 2

1. S_2
   - 1.1 Aortic Stenosis (AS)
   - 1.2 PDA (Patent Ductus Arteriosus)
   - 1.3 Mitral valve regurgitation
   - 1.4 VSD (Ventricular Septal Defect)
   - 1.5 Atrial Septal Defect
   - **1.6 Bundle of His** — **Good to Know**
   - 1.7 Right Bundle Branch Block
   - 1.8 Left Bundle Branch Block
   - **1.9 Wolf Parkinson White (WPW) Syndrome Type** — **Must Know**

Heart Sounds 3

1.	**Loud S1**	**Must Know**
2.	JVP	
2.1	Causes of Kussmaul sign (Mnemonic : CRR)	
2.2	**JVP Waves**	**Good to Know**
3.	**Cardiac Tamponade**	**Good to Know**
3.1	Causes Obstructive Shock	
3.2	Low-Pressure Cardiac Tamponade	
3.3	Normally	
3.4	In Cardiac Tamponade	
3.5	**Important aspects related to JVP**	**Good to Know**

Mitral Valve Prolapse

1.	Highlights of the disorder	
2.	**Causes**	**Good to Know**
3.	Pathophysiology	
4.	Clinical features	
5.	Examination Finding	
6.	Treatment	

Mitral Regurgitation

1. Mechanism
2. Auscultation
3. Treatment of Acute MR
4. Treatment of Chronic MR

Aortic Stenosis

1. Causes
2. Clinical Features of Aortic Stenosis
3. On Examination
4. Work-Up
5. Death In Patients of Aortic Stenosis
6. Stages of Aortic Stenosis

Aortic Regurgitation

1.	Causes of aortic regurgitation (AR)	
2.	**Echocardiographic criteria to identify**	**Good to Know**
3.	**Clinical features**	**Good to Know**

4.	**Examination findings**	**Good to Know**
5.	Work up	
6.	Treatment	

Tricuspid Stenosis

1.	**Clinical features**	**Good to Know**
2.	On Examination	
3.	Treatment	

Tricuspid Regurgitation and Pulmonic Stenosis and Regurgitation

1. Tricuspid Regurgitation (TR)

1.1	**Characteristic findings**	**Must Know**
1.2	On examination	
1.3	Treatment	
1.4	Murmurs	

2. Pulmonic Stenosis (PS)
    - 2.1 Causes
    - 2.2 Clinical features
    - 2.3 On examination
    - 2.4 Work up of Patient
    - 2.5 Treatment
3. Pulmonary Regurgitation
4. Summary

Murmurs

1. Mitral Stenosis (MS)
    - 1.1 Work up
2. Severe Aortic Regurgitation (AR)
3. Mild Aortic Regurgitation
4. Mild Pulmonic Regurgitation
5. Types of Diastolic Murmur
    - 5.1 Carey Coombs murmur
    - 5.2 Flow murmur
6. Coarctation of aorta
7. Systolic Murmurs
    - 7.1 Hypertrophic Obstructive Cardiomyopathy

Takotsubo Cardiomyopathies and Brugada Syndrome

1.	**Takotsubo Cardiomyopathy**	**Must Know**
2.	Brugada Syndrome	
	2.1 Treatment	
3.	Sudden Cardiac Death	

ECG and Arrhythmias Part 1

1.	**Normal ECG**	**Must Know**
2.	Calculation of Heart Rate (HR)	
3.	Axis Calculation	
	3.1 Normal Axis	**Must Know**
	3.2 Extreme Axis Deviation	
	3.3 Left Axis Deviation	
	3.4 Right Axis Deviation	
4.	P wave Abnormalities	
5.	Short PR Interval	
	5.1 Wolf Parkinson White syndrome/Pre-excitation syndrome	
	5.2 Lown-Ganong Levine Syndrome	
6.	Prologed PR Interval	
	6.1 1st Degree Heart Block	
	6.2 2nd Degree Heart Block	
	6.3 3 rd Degree Heart Block	
	6.4 Pacemakers of the Heart	**Good to Know**
7.	**Pacemakers**	**Good to Know**
	7.1 Implantable Cardioverter Defibrillator (ICD)	
8.	Q Wave	
9.	QRS Complex Tachycardia	
10.	Atrial Fibrillation	
	10.1 Need for Anticoagulants in Atrial Fibrillation?	
11.	Atrial Flutter	

ECG and Arrhythmias Part 2

1.	**Paroxysmal Supraventricular Tachycardia**	**Must Know**
	1.1 Clinical Scenario	**Good to Know**
2.	Atrioventricular Reentrant Tachycardia (AVRT)	
3.	**Ventricular Tachycardia (VT)**	**Good to Know**
4.	**Polymorphic Ventricular Tachycardia**	**Must Know**
5.	Tachyarrhythmias	

6. Abnormalities of QRS Complex	**Must Know**
7. Abnormalities of ST-Segment (Elevation)	
8. ST segement Depression	
9. T Wave abnormalities	
10. QT Interval Abnormalities	
11. ECG analysis	

ECG Changes in Hypokalemia & Hyperkalemia

1. T Wave Abnormality (Hyperkalemia)	**Good to Know**
1.1 Treatment of Acute Hyperkalemia	
2. Hypokalaemia	**Must Know**
2.1 Treatment	
3. Summary	

Ischemic Heart Disease Part-1

1. Acute Coronary Syndrome	
1.1 Atherosclerosis	**Good to Know**
1.2 Chronic Stable Angina/ Reversible Ischemia	**Good to Know**
1.3 Unstable Angina/ Accelerating Angina	
1.4 Prinzmetal Angina	**Good to Know**
1.5 Myocardial Infarction	**Must Know**
2. NSTEMI/Unstable angina (Harrison 21st edition update)	**Good to Know**
2.1 NSTEMI/Unstable angina (Harrison 21st edition update)	
2.2 Examination findings	
2.3 Work Up	
3. Treatment	**Good to Know**
3.1 PCI/CABG	

Ischemic Heart Disease Part-2

1. STEMI (STElevation Myocardial Infarction)
   - 1.1 Pathophysiology
   - 1.2 Clinical Features
   - 1.3 On Examination
   - 1.4 Differential Diagnosis of Acute Chest Pain
   - 1.5. Work Up
   - 1.6 Cardiac biomarkers
   - 1.7 Universal Definition

1.8 Types of MI based on etiology

1.9 ECGS of MI

1.10 Management

1.11 Fibrinolysis

1.12 Complications of MI

Symptomatic Bradycardia with a Pulse

1. Chemical Pacing
   1.1 Clinical Features
   1.2 Treatment
2. Transcutaneous Pacing
3. Trans Venous Pacing
4. 1st Degree Heart Block
5. 2nd Degree Heart Block
   5.1 Mobitz I heart block
   5.2 Mobitz II heart block
6. 3rd Degree Heart Block
7. 2:1 Block

Congenital Heart Disease

1. Nadas Criteria
   1.1 Major
   1.2 Minor
2. **Acyanotic Congenital Heart Diseases** **Good to Know**
3. **Atrial Septal Defect /Ventricle Septal Defect** **Good to Know**
4. Cyanotic Heart Diseases
   4.1 Treatment
   4.2 Tet spells / Hyper cyanotic spells
   4.3 Clinical Features of Tetralogy of Fallot
   4.4 On examination
   4.5 Work Up
   4.6 Treatment
5. Tricuspid Atresia
6. TGA(Transposition of Great Arteries)
   6.1 Chest X-Ray
7. Truncus Arteriosus
8. Total Anomalous Pulmonary Venous Connection (TAPVC)
9. Aortic Atresia

9.1 Interrupted aortic arch

9.2 Ductal independent circulation

10. Ebstein anomaly

11. Summary

12. Coarctation of Aorta — **Good to Know**

Metabolic-Syndrome-X and Syndrome-Z

1. Metabolic syndrome/syndrome X — **Good to Know**

2. Diagnostic features of metabolic syndrome/syndrome X — **Must Know**

2.1 Treatment

Hypertension

1. Introduction
2. Blood Pressure

3. Classification — **Good to Know**

4. Home-based BP monitoring (HBPM)
5. White coat HTN
6. Masked HTN
7. Causes of Hypertension
8. Secondary Causes of HTN
9. Target Organ Damage

10. Treatment — **Must Know**

11. Uses Of Anti-Hypertensive — **Must Know**

12. Target Blood Pressure

Diseases of Pericardium

1. Acute Pericarditis
   - 1.1 Investigations
   - 1.2 Treatment
2. Pericardial Effusion
   - 2.1 Electrical Alternans
   - 2.2 Chest X-Ray
3. Low-Pressure Cardiac Tamponade

4. Cardiac Tamponade — **Must Know**

5. Massive Pericardial Effusion
   - 5.1 Treatment of Choice
6. Constrictive Pericarditis
   - 6.1 Treatment

Congestive Heart Failure

1.	**Clinical features**	**Must Know**
2.	**On examination**	**Must Know**
3.	Framingham criteria for diagnosis of CHF	
3.1	Work Up	
3.2	**Treatment**	**Must Know**
3.3	Treatment of Acute decompensation with cardiogenic shock (pump failure)	
3.4	**Medically Refractory Cardiogenic Shock**	**Good to Know**
3.5	**Chronic CHF**	**Good to Know**
3.6	Refractory congestive heart failure	

Bundle Branch Block

1. Pathology of bundle branch block
2. Normal ECG
3. Left Bundle Branch Block (LBBB)
4. Right Bundle Branch Block (RBBB)
5. LBBB Vs RBBB

Rheumatic Heart Disease

1. Acute Rheumatic Fever (ARF)
   - 1.1 Secondary Prophylaxis
   - 1.2 Pathogenesis
   - 1.3 Course of disease
   - 1.4 Carditis
   - 1.5 Arthritis (Rheumatic Arthritis)
   - 1.6 Sydenham Chorea
   - 1.7 Skin Features
   - 1.8 Modified Jones Criteria 2015 update
   - 1.9 Major Criteria
   - 1.10 Minor criteria
   - 1.11 Diagnosis of the disease
   - 1.12 Management of the disease
   - 1.13 Chorea
   - 1.14 AHA Guidelines for Secondary Prophylaxis
   - 1.15 Echocardiographic evidence of Rheumatic carditis

Infective Endocarditis

1.	**Causative Organism**	**Good to Know**
2.	**Case scenarios**	**Good to Know**
3.	Incidence of Infective Endocarditis	
4.	Prosthetic Valve Endocarditis (PVE)	
5.	Culture Negative Endocarditis	
6.	Portals of entry	
7.	Pathogenesis	
8.	Manifestations	
9.	Modified DUKE's Criteria	
10.	Major Criteria	
11.	**Minor modified criteria**	**Must Know**
12.	Treatment	
13.	**High risk cardiac lesions for which endocarditis prophylaxis is advised prior to dental procedures**	**Good to Know**

Updates of Infective Endocarditis

1. 2023 update
2. Updated major criteria
3. Microbiological criteria
4. Imaging major criteria
5. Minor criteria updates

Cardiomyopathies

1.	**Hypertrophic Cardiomyopathy/Hypertrophic Obstructive Cardiomyopathy (HCM/HOCM)**	**Good to Know**
	1.1 Pathophysiology	
	1.2 Clinical Features	
	1.3 Examination	
	1.4 Investigations	
	1.5 Treatment	
	1.6 Interventional Treatments	
2.	Sudden Cardiac Death	
3.	Restrictive Cardiomyopathy (RCM)	
	3.1 Causes	
	3.2 Clinical Features	
	3.3 Investigations	
	3.4 Treatment	
4.	Dilated Cardiomyopathy (DCM)	

- 4.1 Causes
- 4.2 Clinical Scenario
- 4.3 Investigations
- 4.4 Treatment

5. Peripartum Cardiomyopathy
6. Takotsubo Cardiomyopathy

Multifocal Atrial Tachycardia

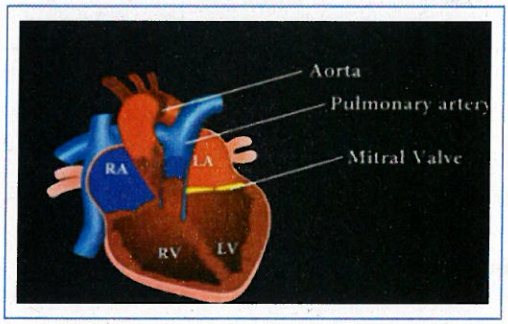
1. **Multifocal Atrial Tachycardia**	**Must Know**

- 1.1 Cause
- 1.2 Clinical Scenario
- 1.3 Management

Cardiology Image Based Question

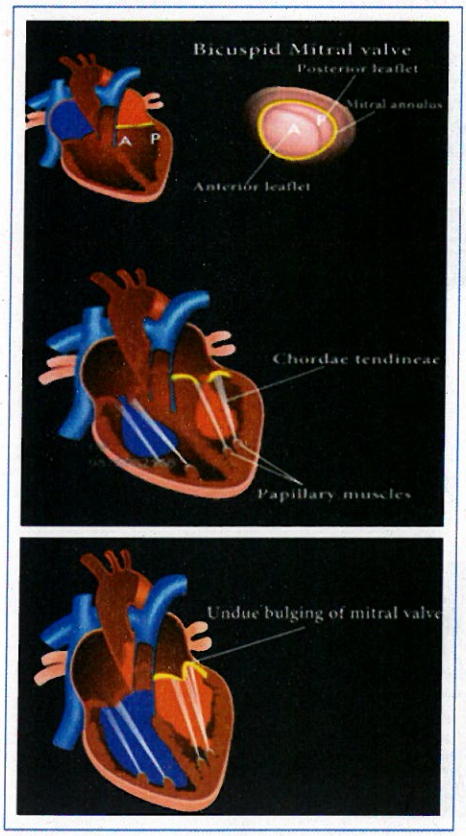
1 MITRAL VALVE PROLAPSE WITH ANIMATION

- Also known as floppy valve syndrome / Barlow syndrome



- During phase of systole, LV generates tremendous amount of pressure to push blood into aorta.
- Creates lot of stress on mitral valve leaflets.
- Bicuspid mitral valve able to retain its position due to:
  - Chordae tendineae
  - Papillary muscles

  } Attached to undersurface of the valves.
- Because of these blood does not leak from left ventricle to left atria.
- In mitral valve prolapse there is undue bulging of mitral valve into the left atria due to lax and loose chordae tendinae.
- Mid systolic click
  - Auscultatory finding due to undue stretching of chordae tendinae (sets up vibrations)



Mid Systolic Click

- Due to extra tension generated in the chordae tendineae during exercise bulging up of mitral valve

Important Information

Ejection click

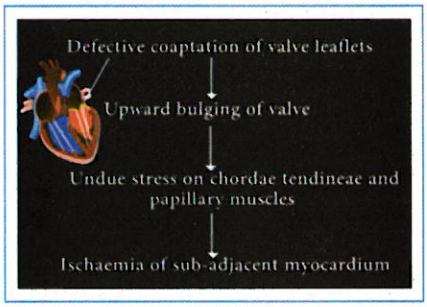
- Normal finding during ventricular systole
- Represent aortic and pulmonic valve opening

MVP

2 problems

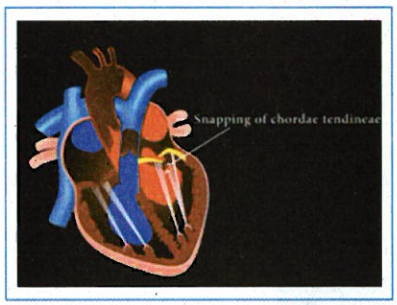
1. **Defective coaptation of valve leaflets**
   - Leakage of blood from LV to LA- results in murmer

2. **Undue stress on chordae tendineae and papillary muscles**
   - Ischemia of sub adjacent myocardium
   - It causes chest pain, angina like symptoms



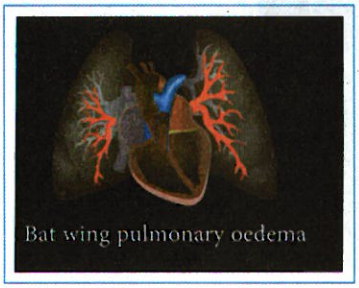
It can result in snapping of chordae tendineae

- Incompetent mitral valve : regurgitation (LV→LA)



In case of incompetent valve

- 10-30 ml of blood leakage from LV to LA
- Structural damage to left atrium
- Pulmonary venous hypertension
- Left ventricular failure (pulmonary edema) - Causes symptoms like orthopnoea
- Bat wing pulmonary oedema



Causes

00:02:12

- Idiopathic myxomatous degeneration of the valve
- Connective tissue disorders like Marfan syndrome, Osteogenesis imperfecta, Ehler Danlos syndrome
- ADPKD- *Autosomal dominant polycystic kidney disease*
- Straight back syndrome
- Ostium secundum ASD

Clinical Presentation

00:02:48

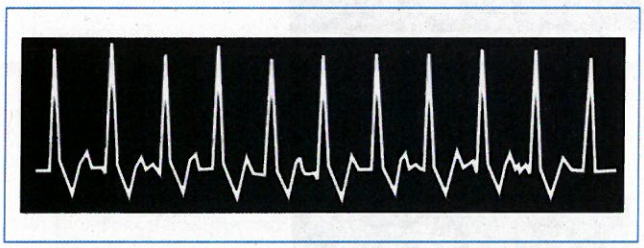
- Asymptomatic (M/C) - While there is no leakage of blood
- Chest pain
- Palpitations and dizziness
- Orthopnea
- Paroxysmal nocturnal dyspnea (PND)
- Arrhythmias - Due to ischemia of myocardium

Rhythm Disorder

00:03:38

1. Premature ventricular contraction (m/c)

- Normal sinus rhythm followed by broad QRS complex followed by normal sinus rhythm.
- Causes weak pulse, dizziness, presyncope and syncopal episodes



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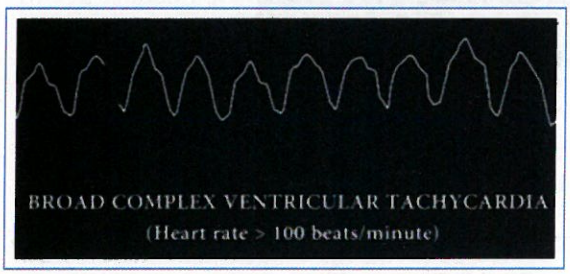
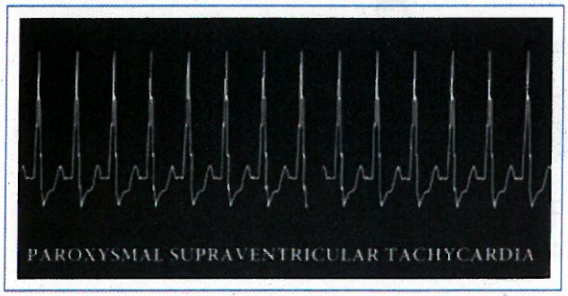
2. Ventricular tachycardia

- HR> 100 bpm



3. PSVT

- Paroxysmal supraventricular tachycardia



4. Atrial fibrillation

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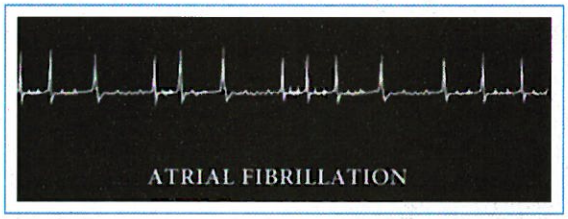
- Due to structural damage to left atria

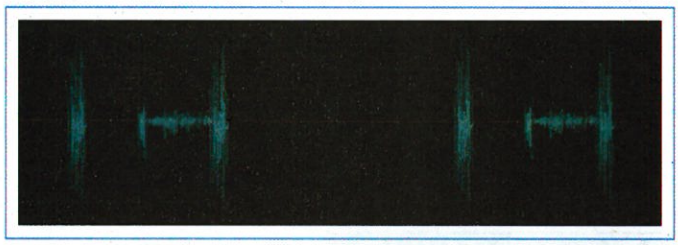


- Commonest sustained arrythmia, overall in clinical practice - Atrial fibrillation
- Most common rhythm disorder seen in MVP - Premature ventricular contractions

Examination Findings

00:04:48

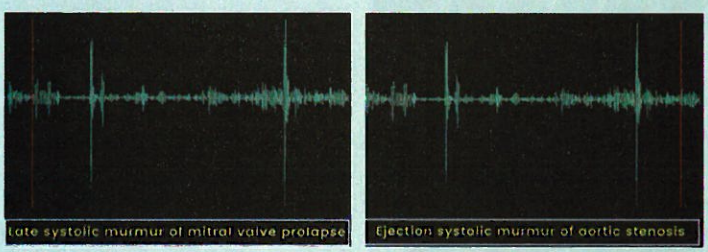
1. Mid systolic clicks (due to undue stretching of chordae tendinae)
2. Late systolic murmur (due to defective coaptation of the valve leaflets)



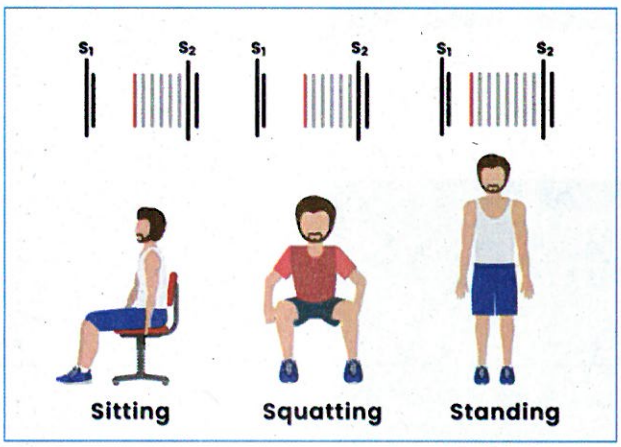
Important Information

Late systolic murmur - Mitral Valve Prolapse

Ejection systolic murmur - Aortic/ pulmonary stenosis

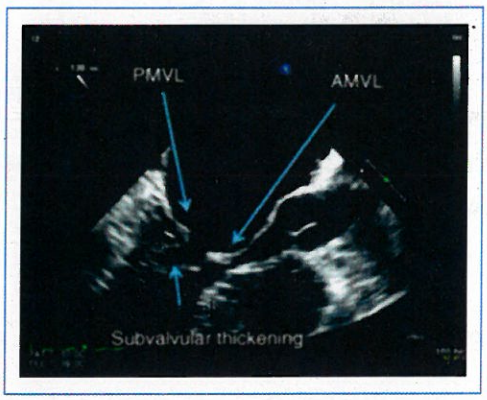


3. Murmur on Squatting & Standing
   - Squatting: Shorter
   - Standing: Longer



IOC 00:06:18

1. Echocardiogram



- Post leaflet defect (affected more commonly)
  - Jet of blood moves anteriorly
  - Murmur radiates to base of heart
- Ant leaflet defect
  - Jet of blood moves posteriorly
  - Murmur radiates to axilla /back

Treatment 00:06:50

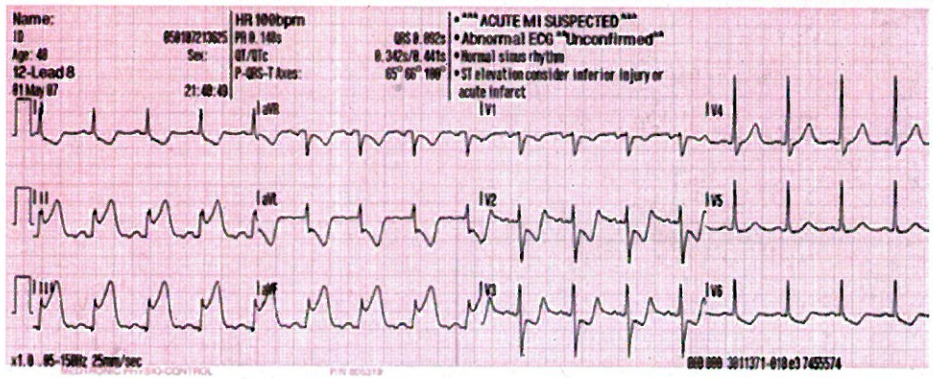
- If already had an episode of infective endocarditis- prophylaxis for the same to be given
  - β blockers
    - → Asymptomatic management
    - → To control heart rate
  - Mitral valve repair
    - → Valvuloplasty
    - → To prevent mitral regurgitation
    - → To maintain left ventricular function and prevent development of decompensated congestive heart failure.

2 PERCUTANEOUS CORONARY INTERVENTION

- Golden Period 00:00:14
- Done for a patient having ST elevation MI (STEMI)
- Higher chances of sudden cardiac death in the 1st hour due to : 00:00:18
  - Tachyarrhythmias - Ventricular fibrillation (VF) or pulseless ventricular tachycardia (VT)
    → TOC: Defibrillation
  - Bradyarrhythmia: Mobitz II heart block
    → Rx: Atropine f/b TCP (transcutaneous pacer) or TVP (transvenous pacer)

↓

To accelerate heart rate



ECG of inferior wall MI

- Patient with STEMI

Significant ST elevation in Leads II, III, aVF (inferior leads)

↓

Helps in identifying inferior wall MI

Troponin-I values show increasing trend by approximately 3 hours