MYOCARDIAL INFARCTION

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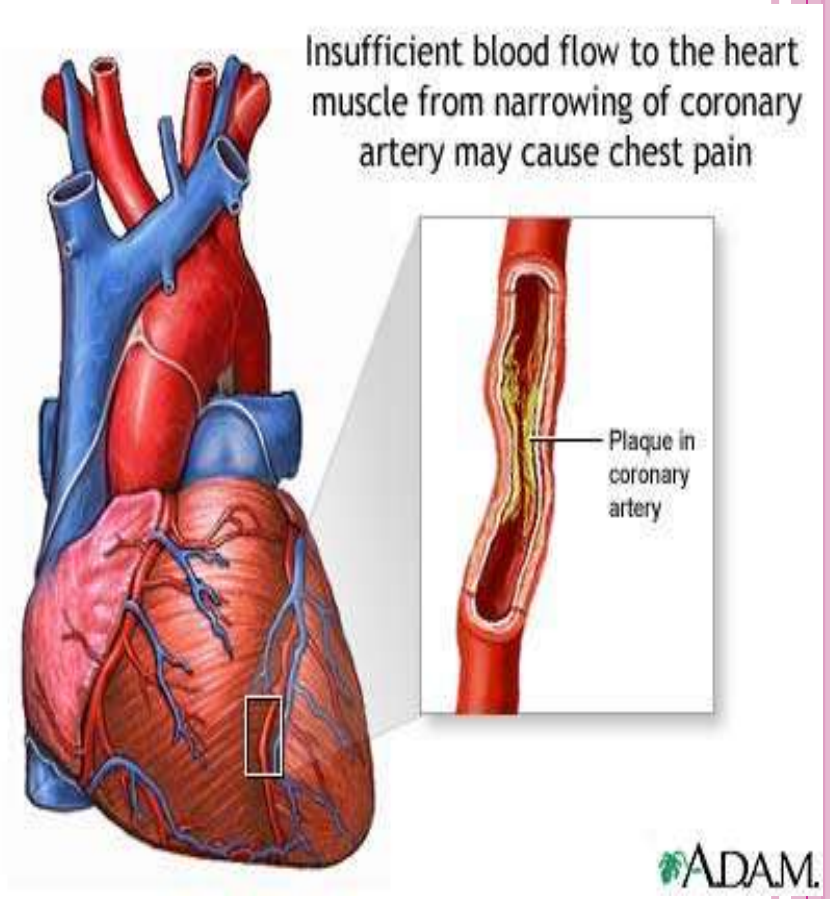
CONTENTS:

1. Definition
2. Types of infarcts
3. Epidemiology
4. Etiology
5. Etiopathogenesis
6. Pathophysiology
7. Clinical manifestations
8. Diagnosis
9. Management:
    - Non-pharmacological
    - Pharmacological

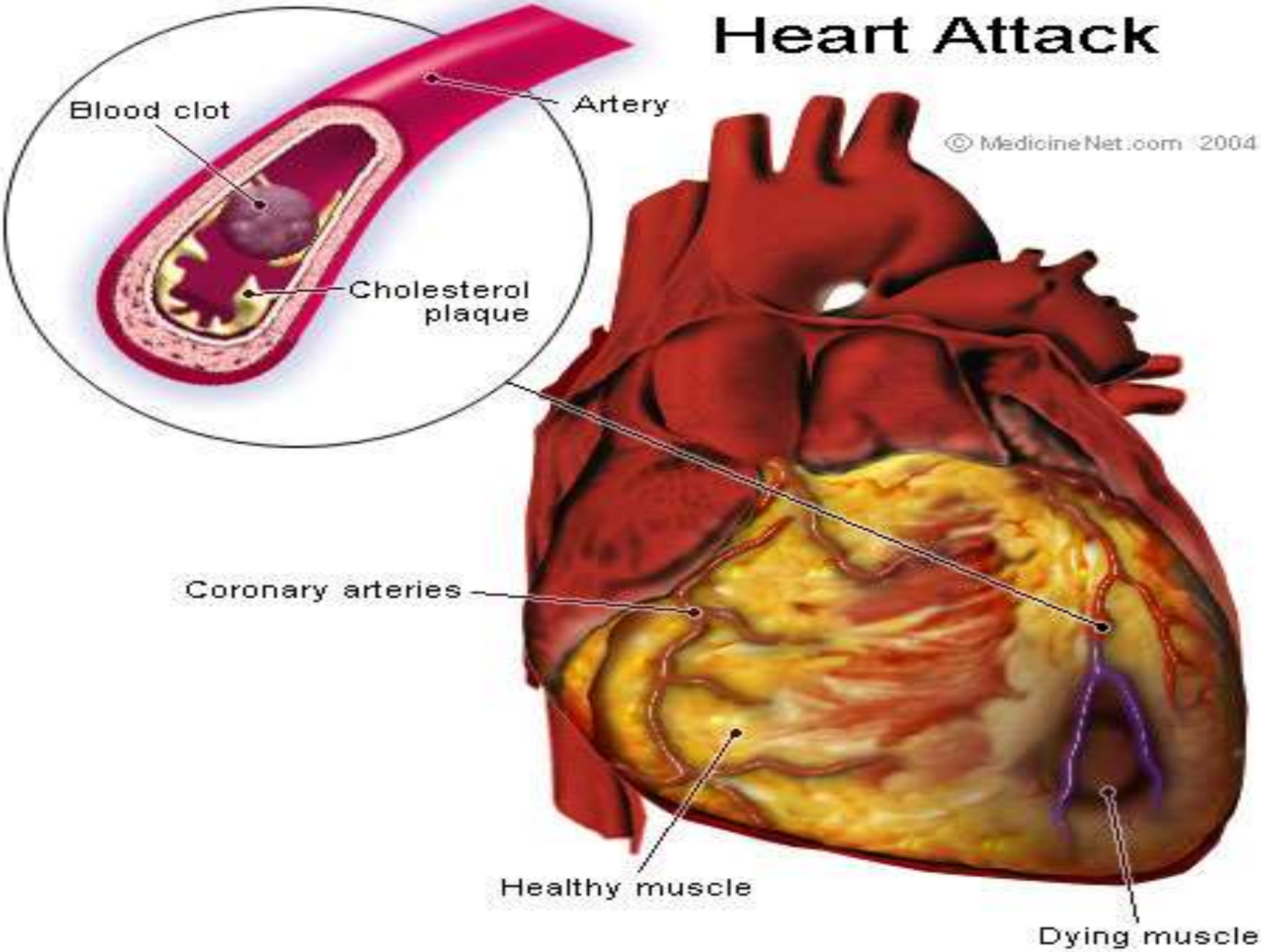
MYOCARDIAL INFARCTION

MI is defined as a diseased condition which is caused by reduced blood flow in a coronary artery due to atherosclerosis & occlusion of an artery by an embolus or thrombus.

MI or heart attack is the irreversible damage of myocardial tissue caused by prolonged ischaemia & hypoxia.



Heart Attack



TYPES OF INFARCTS

1. **According to anatomic region of left ventricle invoved:**
   - ❖ Anterior
   - ❖ Posterior
   - ❖ Lateral
   - ❖ Septal
   - ❖ Circumferential
   - ❖ Combinations- Anterolateral, Posterolateral, Anteroseptal
2. **According to degree of thickness of ventricular wall involved:**
   - ❖ Transmural (full thickness)
   - ❖ Laminar (subendocardial)
3. **According to age of infarcts:**
   - ❖ Newly formed (acute, recent, fresh)
   - ❖ Advanced infarcts (old, healed, organised)

EPIDEMIOLOGY:

- In industrial countries MI accounts for 10-25% of all deaths.
- Incidence is higher in elderly people, about 5% occurs at people under age 40.

- Males have higher risk.
- Women during reproductive period have low risk.

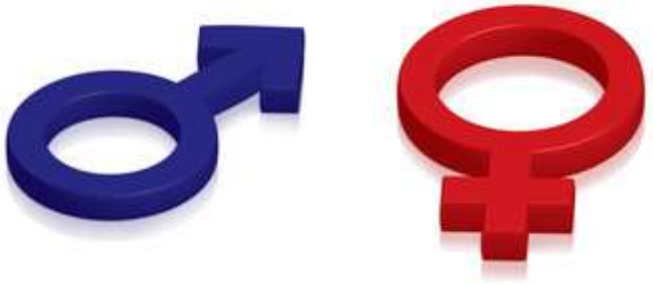
- In 2006, studies revealed a prediction that India would account for 40-60% of cardiovascular diseases burden within next 10-15 years.

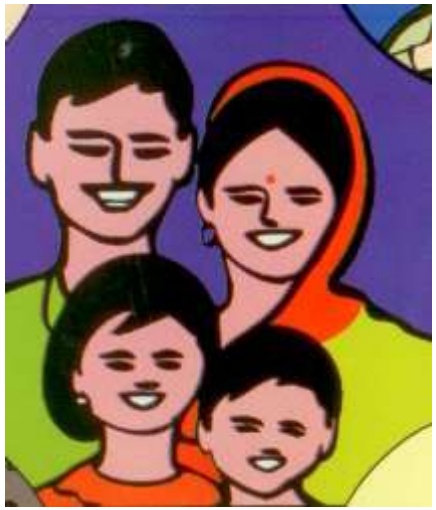
- Over last 30 years, the rate of diseases increased from 2-6% in rural population and 4-12% in urban population.

ETIOLOGY

- Tobacco smoking
- Hypertension
- Drug abuse
- Obesity
- Stress
- Alcohol

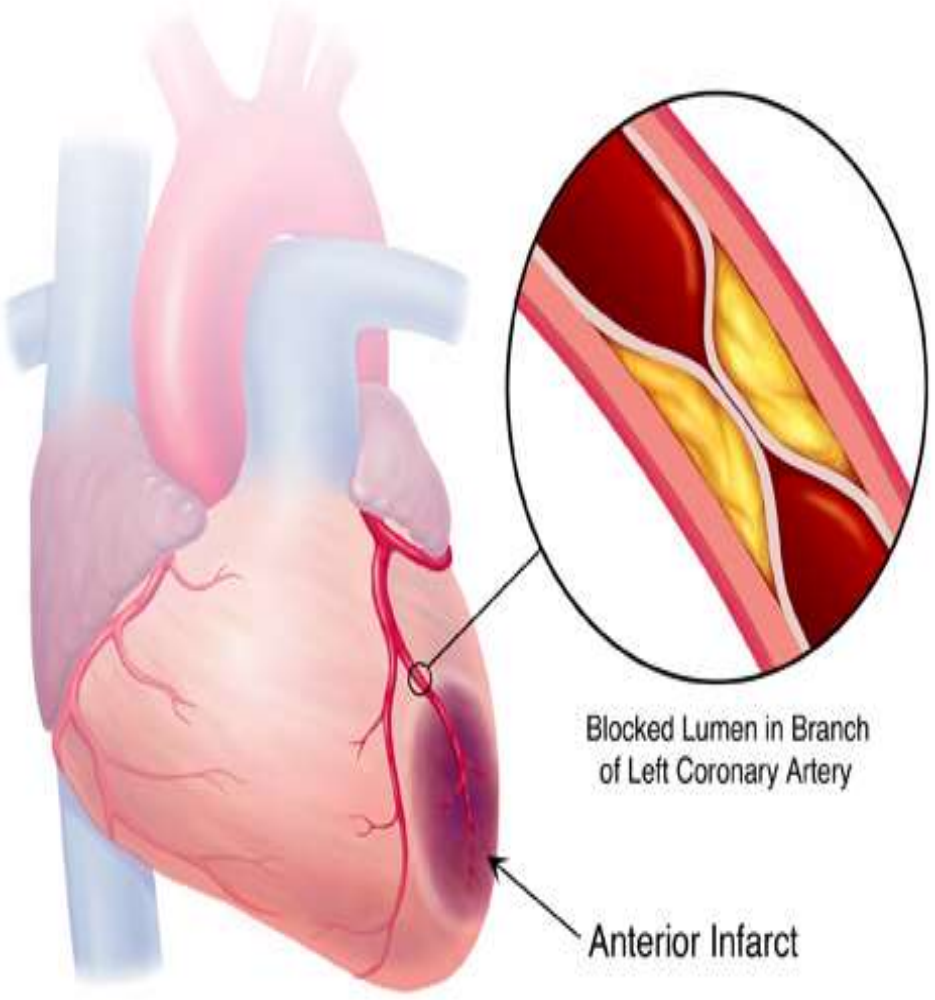
- Age
- Gender
- Diabetes
- Hyperlipoproteinaemia
- Family history of Ischaemic Heart Disease
- Hyperhomocysteinemia
- Chronic kidney disease



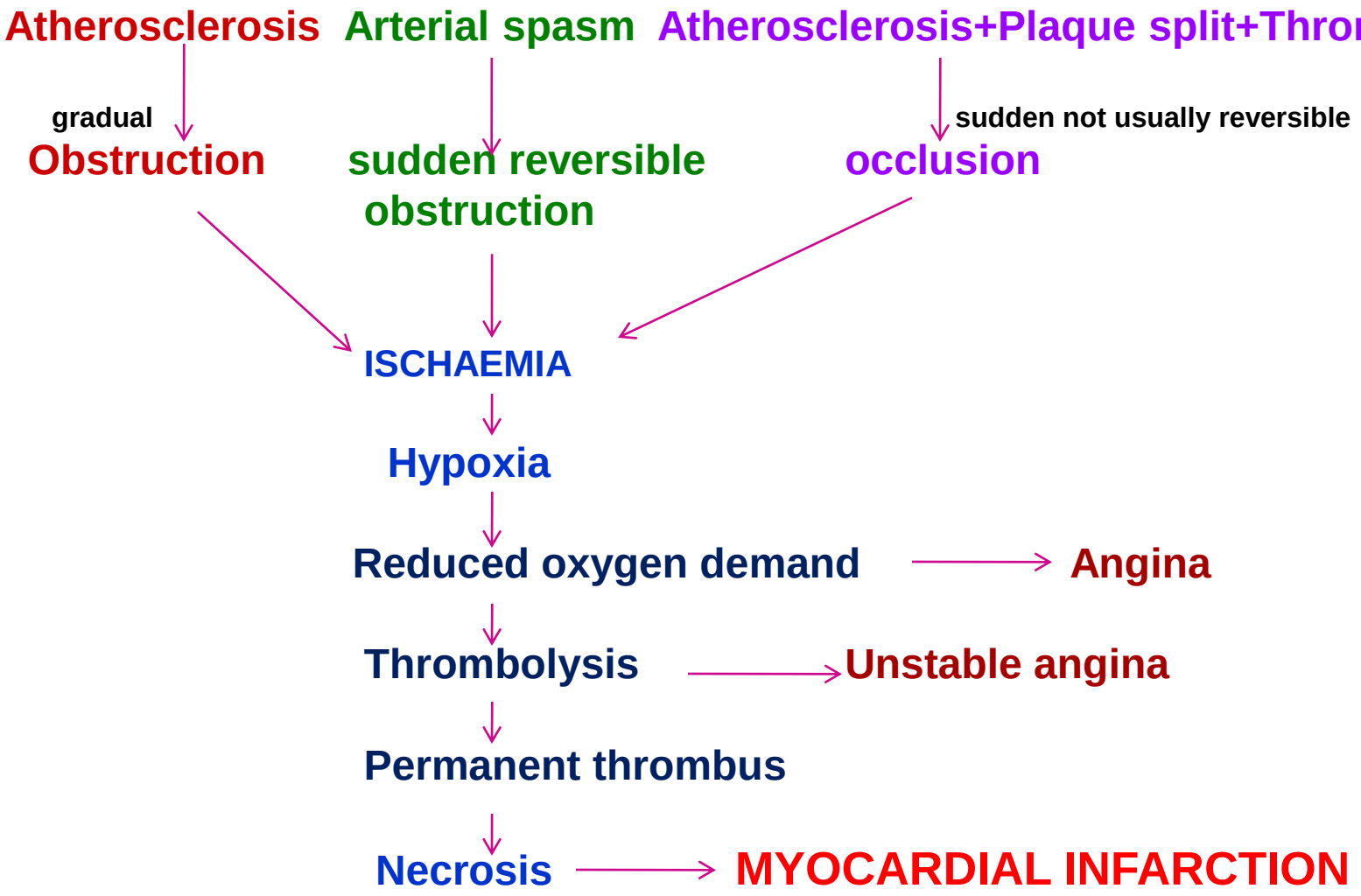


ETIOPATHOGENESIS:

1. Mechanism of myocardial ischaemia.
2. Role of platelets.
3. Acute plaque rupture.
4. Non-atherosclerotic causes.
5. Transmural versus subendocardial infarcts.



PATHOPHYSIOLOGY



CLINICAL MANIFESTATIONS:

- **Chest pain / chest discomfort**
- **Dyspnea**
- **Fatigue**
- **Other symptoms include:**
  - **Increased sweating**
  - **Weakness**
  - **Nausea**
  - **Vomiting**
  - **Light-headedness**
  - **Palpitation**
- **Anxiety, sleeplessness, hypertension or hypotension, arrhythmia.**

- **Chest pain is less in women, their common symptoms are weakness, fatigue & dyspnea.**

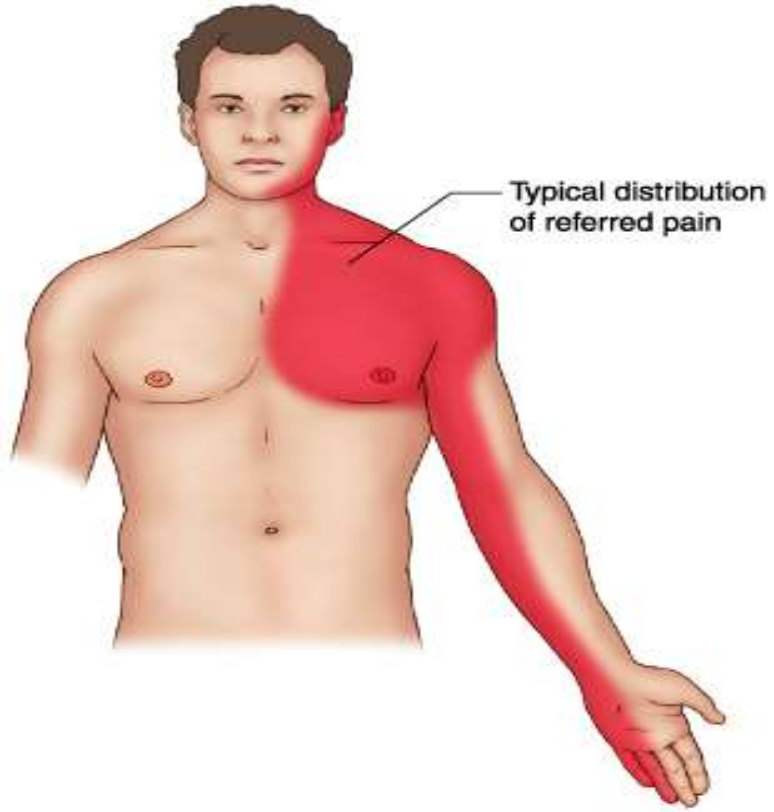
Complications include:

- Arrhythmia
- Cardiogenic shock (10%)
- Congestive heart failure
- Thromboembolism
- Rupture (5%)
- Cardiac aneurism (5%)
- Pericarditis

DIAGNOSIS:

1.Clinical features:

- *Pain*
- *Indigestion*
- *Apprehension*
- *Shock*
- *Low grade fever*



2.Serum cardiac markers:

- Creatinine phosphokinase (CK)
- Lactic dehydrogenase (LDH)
- Cardiac specific troponins (cTn)

3.ECG changes:

- ST segment elevation
- T wave inversion
- appearance of wide deep Q waves.

- ***MAGNETIC RESONANCE IMAGING (MRI)***

- ***ANGIOGRAPHY***

- ***POSITRON EMISSION TOMOGRAPHY (PET scan):***

- ***CHEST X- RAY***

MANAGEMENT:

1.NON-PHARMACOLOGICAL:

- ✓Counselling and education of patients
- ✓Life style measures
- ✓Smoking cessation
- ✓Avoid Alcohol intake
- ✓Diet and nutrition
- ✓Salt restriction

2.PHARMACOLOGICAL:

- ✓Thrombolytic agents
- ✓Anticoagulants
- ✓Antiplatelet agents
- ✓Antihypertensive agents
- ✓Lipid lowering drugs
- ✓Vasodialators
- ✓*Others*

i) Analgesics

ii) Antiulcer drugs

iii) Antidepressants

TREATMENT ALGORITHM FOR MI:

Myocardial Infarction

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Pre-hospital or on arrival

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GTN spray, Oxygen, Pain relief, Admission to hospital, Aspirin, Thrombolytics

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During hospital admission

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Add: **beta blocker, ACE inhibitor, insulin**

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Consider: **Revascularization (Angioplasty, Stenting, Arterial bypass)**

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Long term

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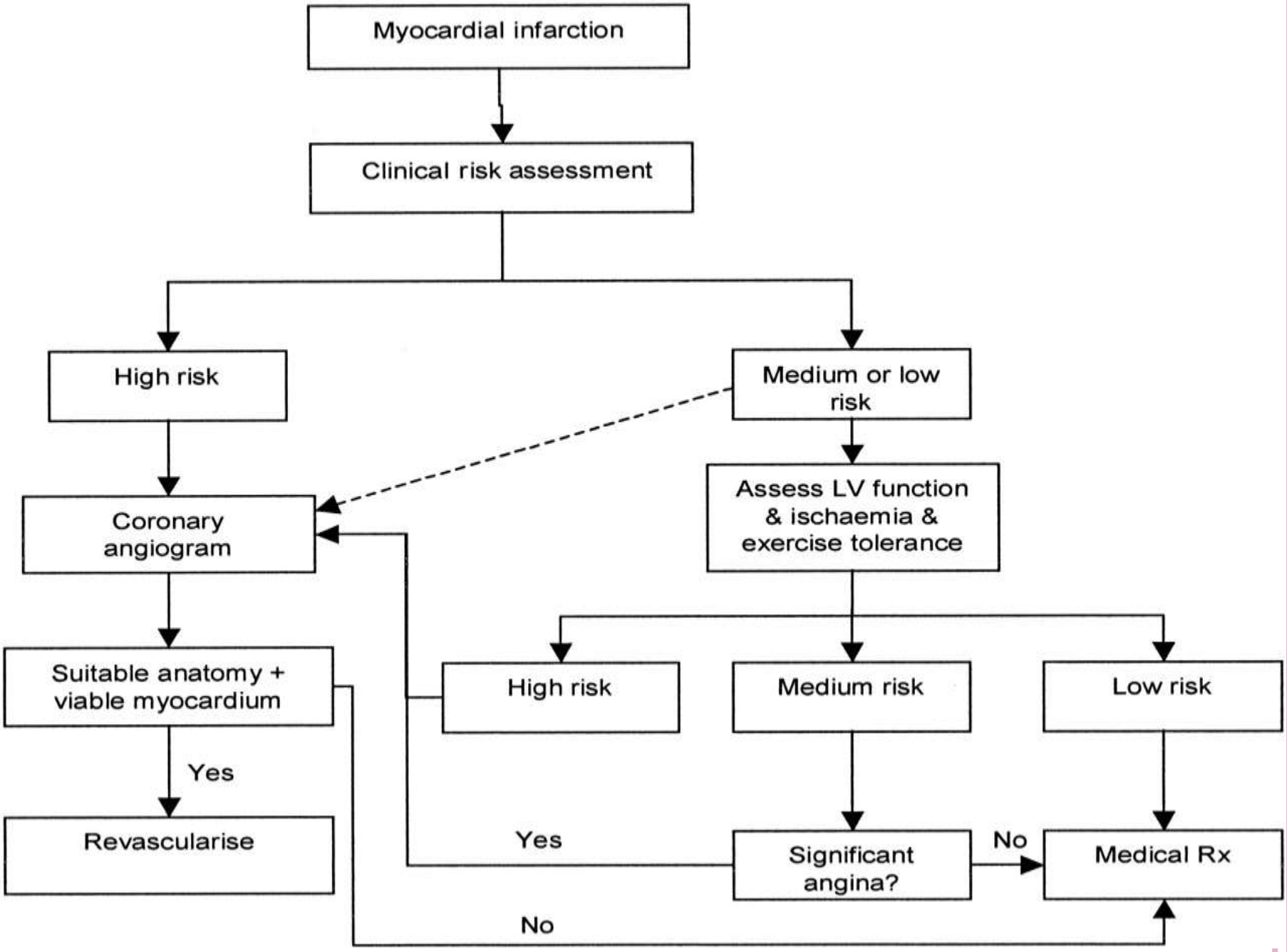
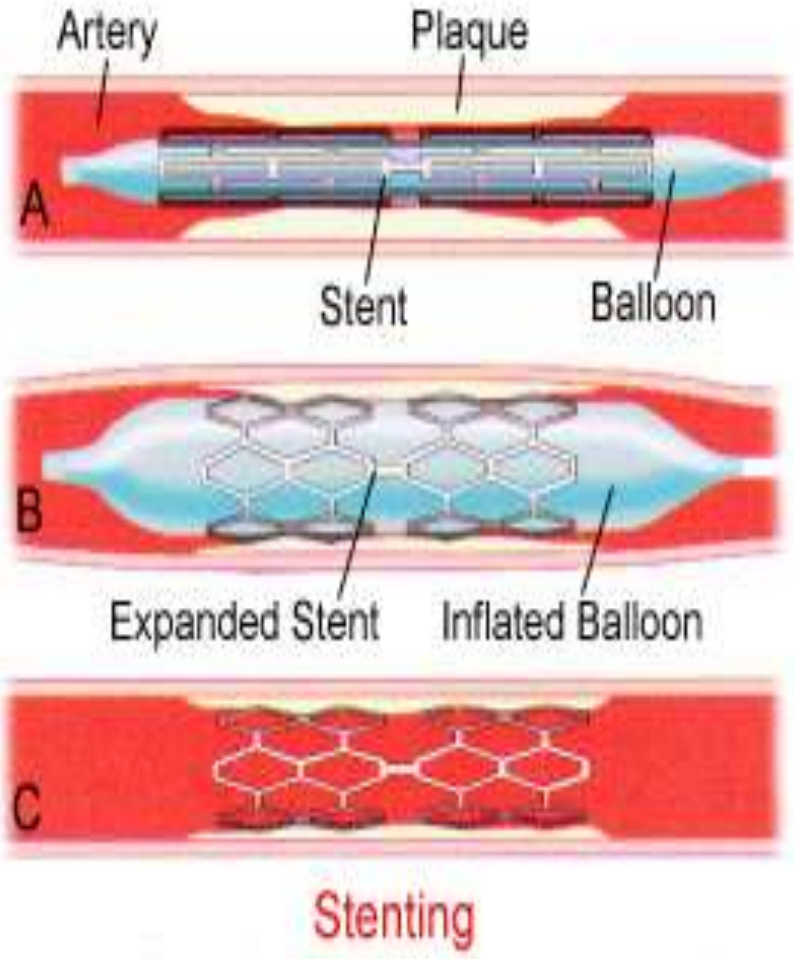
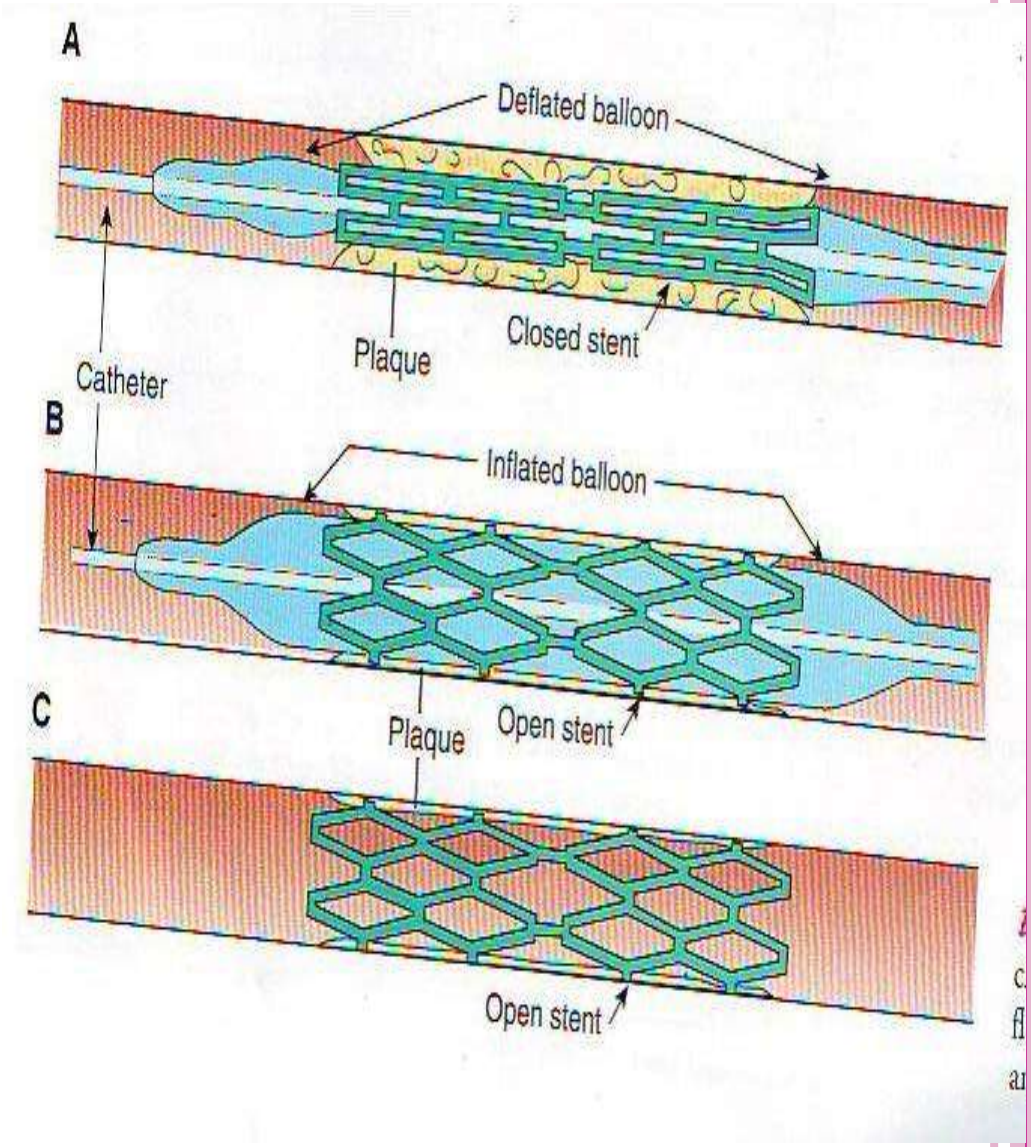
Rehabilitation classes: **Aspirin, beta blocker, ACE inhibitor, Statins**


Myocardial infarction
Clinical risk assessment
High risk
Medium or low risk
Coronary angiogram
Assess LV function & ischaemia & exercise tolerance
Suitable anatomy + viable myocardium
High risk
Medium risk
Low risk
Yes
Revascularise
Yes
Significant angina?
No
Medical Rx
No

PERCUTANEOUS TRANSLUMINAL CORONARY ANGIOPLASTY (PTCA)

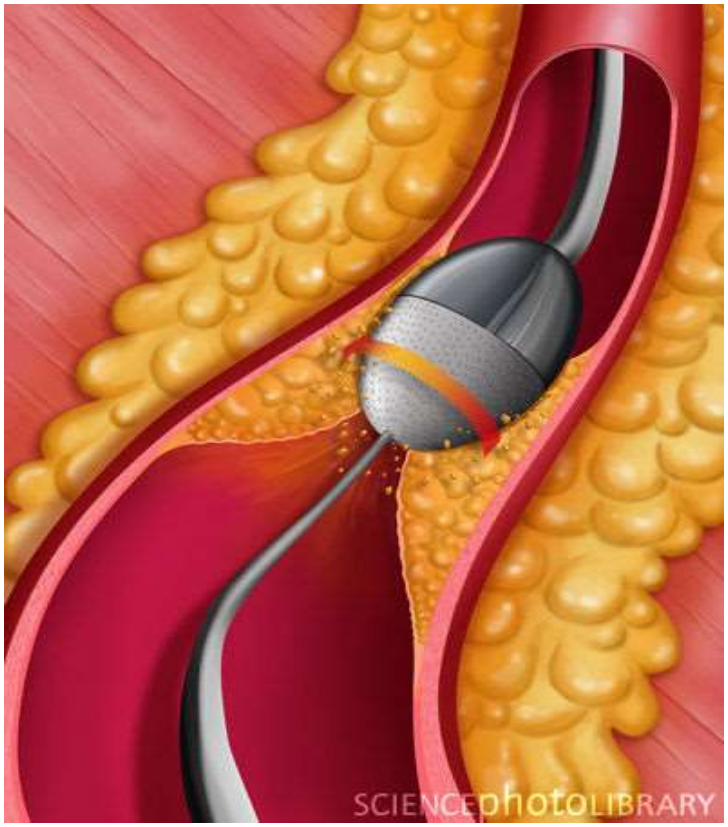


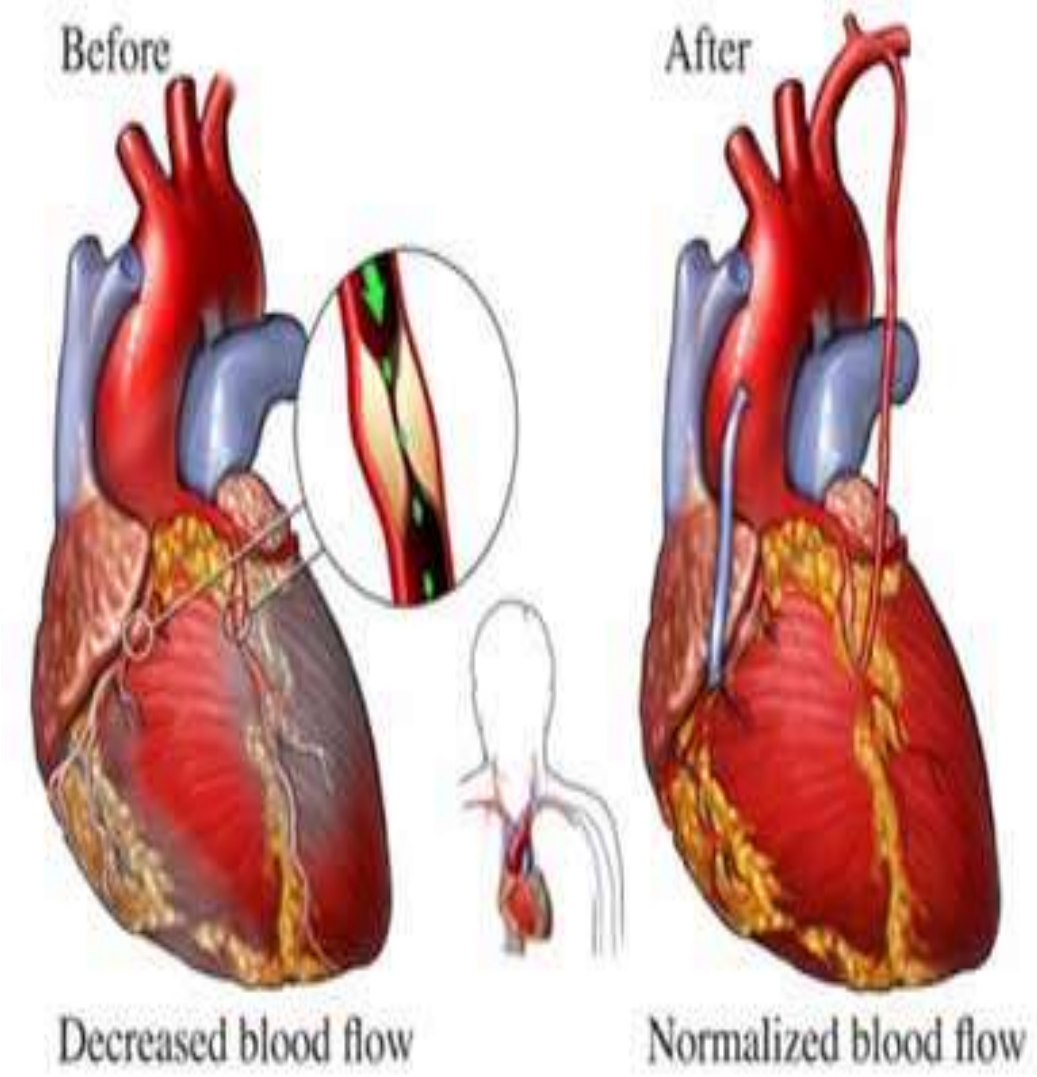
STENT PLACEMENT



CORONARY ARTERY BYPASS GRAFT (CABG)

ATHERECTOMY





THANK YOU…..