SNS COLLEGE OF ALLIED HEALTH SCIENCE

Affiliated to The Tamil Nadu Dr. M.G.R Medical University, Chennai

DEPARTMENT OF CARDIAC TECHNOLOGY

COURSE NAME: CF & BLS

UNIT : 2

TOPIC : ANGINA PECTORIS

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Definition

Angina Pectoris: Chest pain/discomfort due to myocardial ischemia

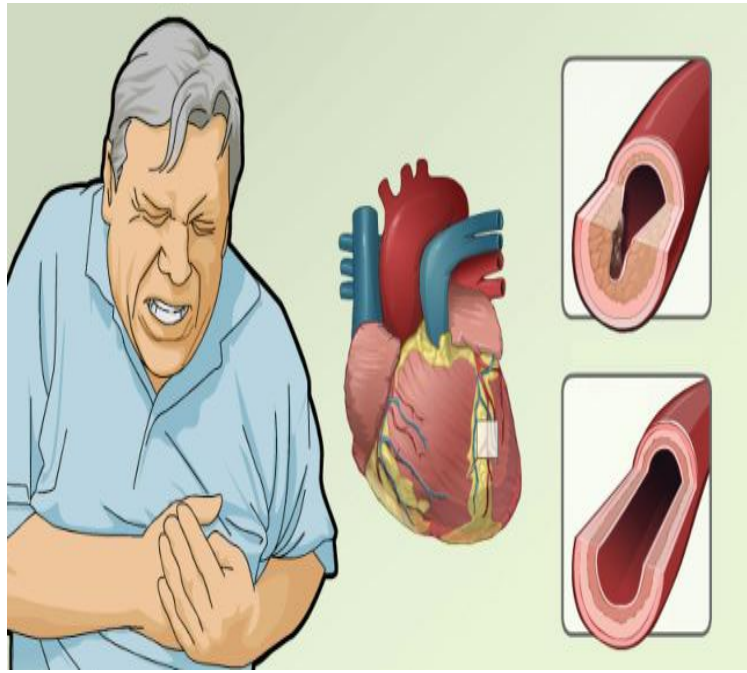
Cause: Imbalance between myocardial oxygen supply and demand

Primary mechanism:

•Atherosclerotic coronary artery disease (CAD) → reduced blood flow

•Other causes: coronary spasm, microvascular dysfunction, anemia

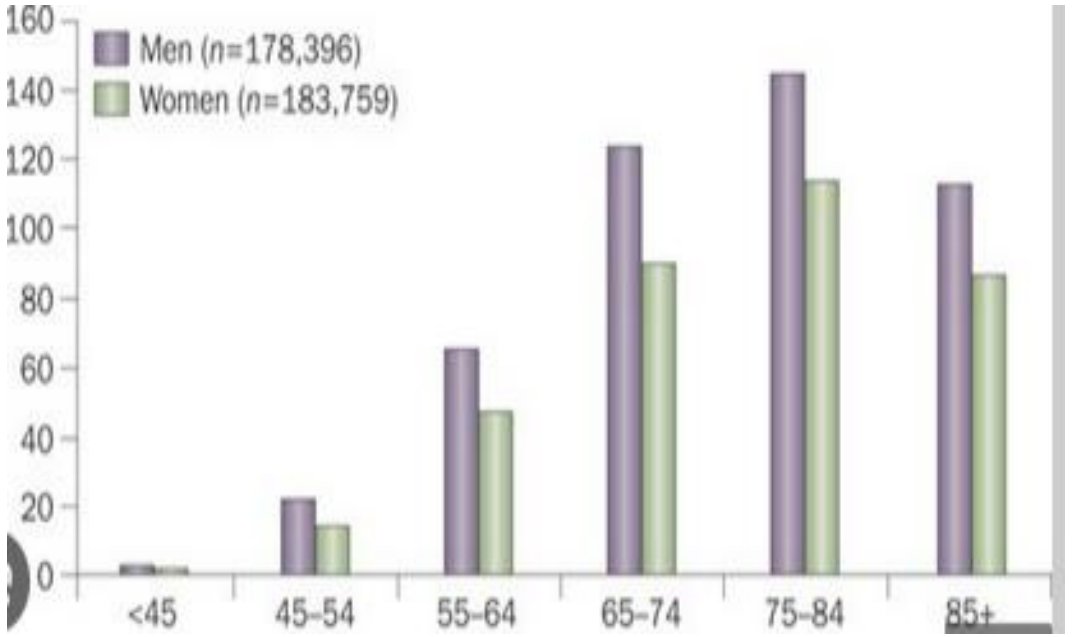
Triggers: Exercise, stress, cold, heavy meals



Epidemiology

- Prevalence: ~9% in men, ~7% in women (age >40, varies by region)
- Incidence increases with age
- Risk factors:
- Modifiable: Smoking, hypertension, diabetes, dyslipidemia, obesity
- Non-modifiable: Age, male sex, family history of CAD

- Global burden: Major cause of morbidity/mortality in CAD



Classification of Angina

Type	Description	Key Features
Stable Angina	Predictable, triggered by exertion/stress	Relieved by rest/nitroglycerin
Unstable Angina	New-onset, worsening, or at rest	High risk of myocardial infarction
Variant (Prinzmetal)	Coronary artery spasm, often at rest	ST elevation, responds to vasodilators
Microvascular Angina	Dysfunction of small coronary vessels	Normal coronaries, women > men

Clinical Features

Classic Symptoms:

•Central/retrosternal chest pain, pressure, or heaviness

•Radiation to arms, neck, jaw, or back

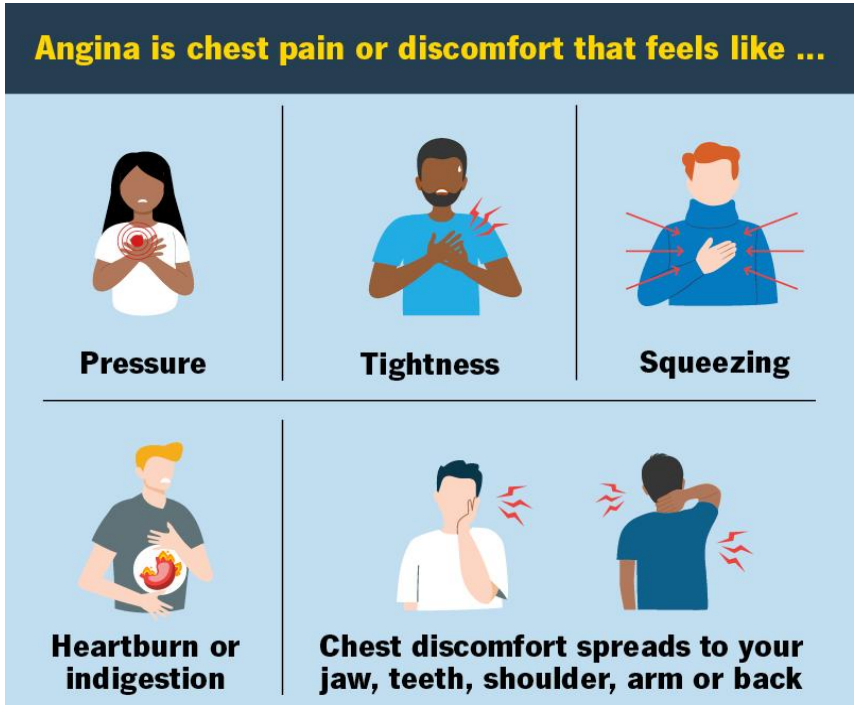
•Duration: 2–10 minutes (stable); longer in unstable

Associated symptoms: Dyspnea, nausea, sweating, fatigue

Atypical presentations:

•Common in women, elderly, diabetics

•Epigastric pain, jaw pain, or isolated dyspnea



Grading of Stable Angina (CCS Classification)

Class	Description
I	Angina only with strenuous exertion
II	Slight limitation, occurs with moderate activity (e.g., climbing >1 flight of stairs)
III	Marked limitation, occurs with minimal activity (e.g., walking short distances)
IV	Angina at rest or with any physical activity

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Diagnosis – Clinical Approach

History: Detailed symptom analysis (onset, triggers, relief)

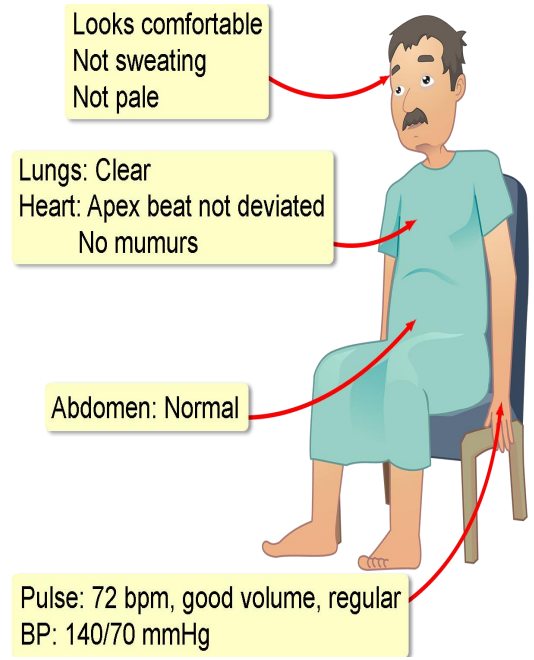
Physical Exam: Often normal; look for signs of heart failure, murmurs, or risk factors (e.g., xanthomas)

Diagnostic Criteria:

•Typical angina: Substernal pain, triggered by exertion, relieved by rest/nitroglycerin

•Atypical angina: Meets 2 of 3 criteria

•Non-anginal pain: Meets ≤1 criterion



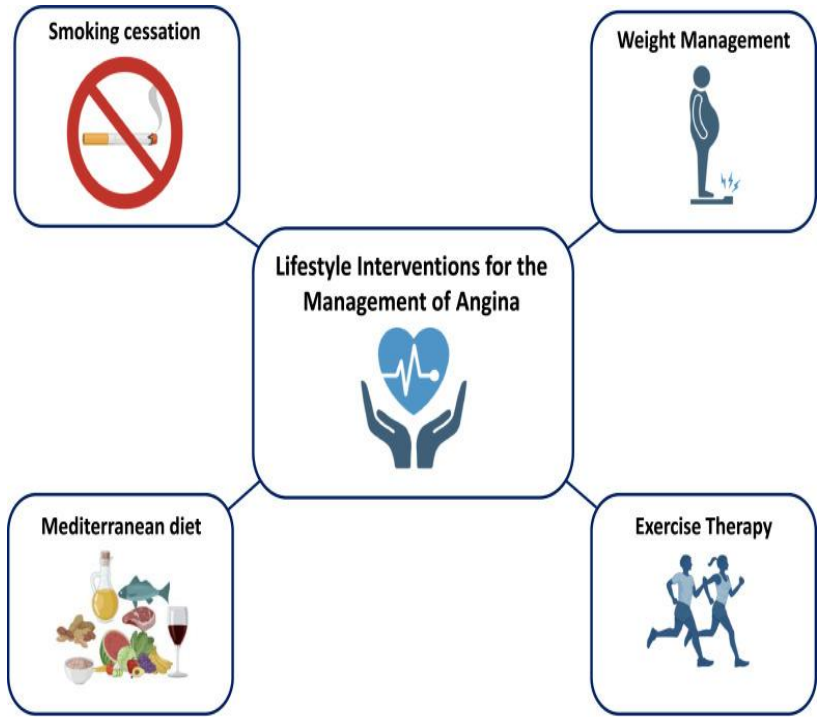
Key Investigations

Test	Purpose	Findings in Angina
ECG	Detect ischemia, prior MI	ST depression, T-wave inversion
Stress Testing	Provoke ischemia (treadmill, dobutamine)	ST changes, symptoms at lower workload
Coronary Angiography	Gold standard for CAD	Stenosis >70% in major arteries
Echocardiography	Assess LV function, wall motion	Regional wall motion abnormalities
Cardiac CT/MRI	Non-invasive coronary imaging	Calcium score, plaque assessment
Blood Tests	Rule out ACS, assess risk factors	Troponin (normal in stable), lipids

Management – Non-Pharmacological

- Lifestyle Modification (cornerstone):
- Smoking cessation
- Heart-healthy diet (Mediterranean, low saturated fats)
- Regular exercise (30 min, 5 days/week)
- Weight management (BMI <25 kg/m^2)

- Risk Factor Control:
- Blood pressure: Target <130/80 mmHg
- Diabetes: HbA1c <7%
- Lipid control: LDL <70 mg/dL (high-risk patients)



Pharmacological Treatment – Prevention

Drug Class	Example	Dose Example	Notes
Antiplatelets	Aspirin	75–100 mg OD	Reduces risk of MI
Statins	Atorvastatin	20–80 mg OD	LDL reduction, plaque stabilization
ACE inhibitors	Ramipril	2.5–10 mg OD	For LV dysfunction, hypertension
Ranolazine	Ranolazine	500–1000 mg BD	For refractory angina, no BP effect

Revascularization

Indications:

•Refractory symptoms despite optimal medical therapy

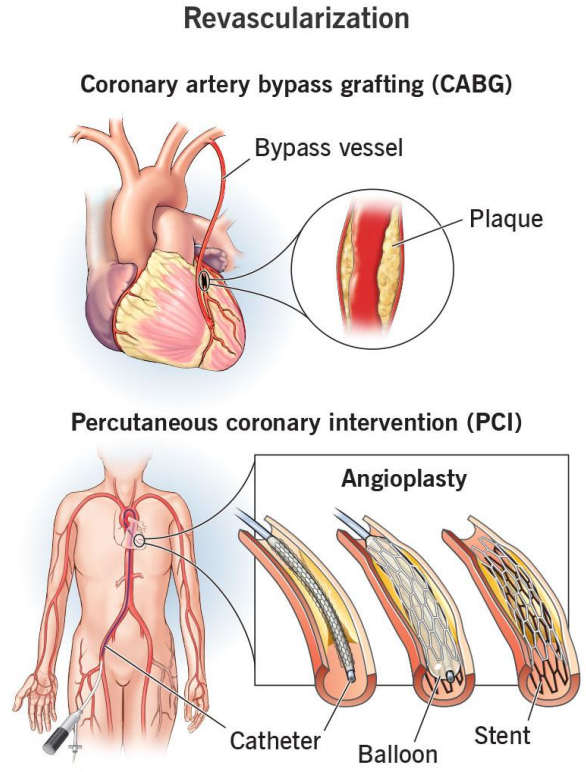
•High-risk features (e.g., left main disease, multivessel CAD)

Options:

•Percutaneous Coronary Intervention (PCI): Stenting for single-vessel disease

•Coronary Artery Bypass Grafting (CABG): Preferred for multivessel or left main disease

Outcomes: Symptom relief in 80–90%, but no mortality benefit in stable angina



Prognosis and Complications

- Stable Angina:
- Annual mortality ~1–2% with optimal therapy
- Risk of MI: ~2–3% per year

- Unstable Angina: High risk of progression to MI/death without intervention
- Complications: Myocardial infarction, heart failure, arrhythmias
- Prognostic Factors: Extent of CAD, LV function, adherence to therapy

SUMMARY

- Angina pectoris is a clinical diagnosis based on history and confirmed by testing
- Stable angina is managed with lifestyle changes, medications, and revascularization if needed
- Unstable angina requires urgent evaluation (rule out ACS)
- Key investigations: ECG, stress testing, coronary angiography
- Patient education on triggers and nitrate use is critical for quality of life

REFERENCE

- https://www.radiologyinfo.org/en/info/anginapectoris
- https://www.nhlbi.nih.gov/health/angina

THANK YOU