Block O MCQs Presentations

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Left-sided heart failure

- Progressive dyspnea on exertion
- Orthopnea (needs extra pillows)
- Paroxysmal nocturnal dyspnea (PND)
- Nocturnal cough, pink frothy sputum
- Fatigue, reduced exercise tolerance
- Basal fine crackles
- S3 gallop
- Displaced apex beat
- MCQ buzzword: PND + orthopnea = LV failure

Right-sided heart failure

- Bilateral pitting pedal edema
- Abdominal distension / ascites
- Right upper quadrant pain (congestive hepatomegaly)
- Early satiety, nausea
- Raised JVP
- Hepatomegaly
- Peripheral edema
- 📌 MCQ buzzword: JVP + edema + hepatomegaly

Biventricular failure

- Dyspnea + orthopnea
- Pedal edema + raised JVP
- Fatigue + ascites
- 📌 Often asked as: long-standing hypertension / ischemic heart disease

Acute decompensated heart failure / Pulmonary edema

- Sudden severe breathlessness
- Pink frothy sputum
- Severe anxiety, sweating
- Tachycardia, hypertension initially
- Widespread crackles
- Hypoxia
- 📌 MCQ buzzword: Pink frothy sputum + sudden dyspnea

CHF in elderly

- Confusion / delirium
- Reduced appetite
- Failure to thrive
- Recurrent falls

- 📌 MCQs may hide CHF behind confusion + edema

Nocturnal symptoms
- Waking up breathless at night (PND)
- Nocturia (lying flat → increased renal perfusion)
- 📌 MCQ: patient wakes up to pass urine at night

ACUTE HEART FAILURE MANAGEMENT

Hemodynamically stable patients
- SBP > 90 mm Hg AND no signs of end-organ hypoperfusion; respiratory distress can be present.
- No evidence of congestion (dry and warm)
    - Optimize oral therapy.
- Evidence of congestion (wet and warm)
    - Start initial measures for respiratory support in AHF (e.g., positioning, supplemental O2) as needed.
    - Supplemental oxygen: indicated for patients with an SpO2 < 90% or PaO2 < 60 mm Hg
    - Start diuretic therapy for AHF if there is volume overload.
      Diuretic-naive patients: IV furosemide OR bumetanide
      Refractory AHF (despite high doses of loop diuretics): Consider Combination therapy with a thiazide diuretic, e.g., metolazone, hydrochlorothiazide, chlorothiazide
    - Consider vasodilators for AHF, e.g., nitrates. (consider IV nitroglycerin, sodium nitroprusside)

Hemodynamically unstable patients
- Clinical presentation can vary (may be Cardiogenic shock or hypertensive emergency)
- Cardiogenic shock: SBP < 90 mm Hg OR signs of end-organ hypoperfusion
- Hypertensive emergency: hypertension (e.g., SBP > 180 mm Hg) PLUS flash pulmonary edema and hypoxemic respiratory failure
- Evidence of congestion with shock (wet and cold)
    - Prioritize respiratory support for AHF.
    - Consider inotropic support (e.g., dobutamine, norepinephrine).
- Shock without evidence of congestion (dry and cold):
    - Consider fluid challenge; add vasopressors and inotropes for shock refractory to fluids.
- Hypertensive emergency with flash pulmonary edema (wet and warm)
    - Begin NIPPV and vasodilators (e.g nitrates) for AHF.
    - Identify and treat the underlying trigger.

Supportive care
- Fluid restriction does not reduce hospitalization or mortality rates in patients with HF.

- Sodium restriction
- Identify and treat comorbidities (e.g., atrial fibrillation, pneumonia, COPD) and underlying triggers.

Management of comorbidities with HF

- Hypertension: treatment target of < 130/80 mm Hg
- Diabetes mellitus: SGLT2is are recommended for all patients.
- Iron deficiency: Parenteral iron therapy is recommended for patients with symptomatic HFrEF or HFmrEF.
- Obesity: Consider semaglutide in patients with HFpEF.
- Obstructive sleep apnea: Consider nocturnal continuous positive airway pressure (CPAP) therapy

Pharmacotherapy for HFrEF

ACC/AHA stage B

- Beta blocker
- PLUS either an ACEI or ARB

ACC/AHA stages C and D

- One agent from each of the following drug classes, unless contraindicated (e.g., prior hypersensitivity reaction):
  Diuretics
  RAAS inhibitors
  Beta blockers
  SGLT2 inhibitors
  Mineralocorticoid receptor antagonists

Initial pharmacotherapy for HFrEF

Diuretics

- Loop diuretics - Preferred option for all patients with congestion
- Thiazide diuretics - May be added if no response to moderate or high-dose loop diuretics

RAAS inhibitors

- Angiotensin receptor-neprilysin inhibitors (ARNIs)
  - Sacubitril/valsartan
  - Preferred initial agent for RAAS inhibition for patients with ACC/AHA stage C HFrEF and/or NYHA class II-IV HF
  - Stop ACEIs 36 hours before starting an ARNI to avoid an elevated risk of angioedema
- ACE inhibitors (ACEIs)
  - All patients with ACC/AHA stage B HFrEF
  - Patients with ACC/AHA stages C and D HFrEF if ARNI is not tolerated or affordable
- Angiotensin receptor blockers (ARBs)

    - Patients with ACC/AHA stages B, C, and D HFrEF if ARNI and ACEIs are not tolerated (e.g., because of a dry cough or history of angioedema) or affordable

Beta blockers

- All patients with ACC/AHA stages B, C, and D HFrEF

SGLT2 inhibitors (SGLT2is)

- Dapagliflozin, Empagliflozin
- Patients with any of the following:
    - ACC/AHA stage C
    - NYHA class II-IV HFrEF
    - LVEF ≤ 40%

Mineralocorticoid receptor antagonists (MRAs)

- Spironolactone, Epleronone
- All patients with ACC/AHA stage C HFrEF without contraindications i.e., eGFR < 30 mL/min/1.73 m2 and serum K+ > 5.0 mEq/L

Drugs that improve prognosis (i.e., reduce morbidity, mortality, and hospitalization rates) are beta blockers, ACEIs, ARNIs, MRAs, hydralazine with isosorbide dinitrate, and SGLT2is.

Pharmacotherapy for HFpEF

- First-line agents
    - SGLT2i for all patients: e.g., dapagliflozin or empagliflozin
    - Loop diuretic for patients with congestion: e.g., furosemide or torsemide

Cardiac Resynchronization Therapy (CRT)

- Symptomatic heart failure - NYHA class II–IV (despite optimal medical therapy)
- Reduced ejection fraction - LVEF ≤ 35%
- Wide QRS complex - QRS ≥ 150 ms ⭐ (strongest indication)
- Left bundle branch block (LBBB) morphology

Side effects of Thiazide diuretics

- Hyponatremia
- Hypokalemia
- Metabolic Alkalosis
- Hyperglycemia
- Hyperlipidemia
- Hyperuricemia
- Hypercalcemia

Side effects of ACE inhibitors (prils)

- Angioedema
- Renal insufficiency
- Hepatic dysfunction
- Rash

- Hyperkalemia
- Cough - (if cough develops, switch to ARBs)
- First dose hypotension

Side effects of ARBs (sartans)

- Hyperkalemia
- Hypotension
- Acute kidney injury
- Teratogenicity

High-Yield One-Liners for Exams

- Thiazides → Hypercalcemia
- Loops → Hypocalcemia
- Thiazides precipitate gout
- Thiazides worsen diabetes
- Thiazides cause metabolic alkalosis

Stable angina

- Central retrosternal chest pain
- Pressure / squeezing / heaviness
- Radiates to left arm, neck, jaw
- Precipitated by exertion or stress
- Relieved by rest or nitrates
- Duration < 20 minutes
- 📌 Exertional pain relieved by rest = stable angina

Unstable angina

- Chest pain at rest
- Increasing frequency/severity
- New-onset angina (<2 months)
- Not fully relieved by nitrates
- Normal cardiac biomarkers
- - +/- ST depression
- 📌 Crescendo angina = unstable angina

Acute myocardial infarction

- Severe chest pain > 20–30 minutes
- Crushing / tight pain
- Not relieved by rest
- Radiation to left arm, jaw, epigastrium
- Associated symptoms: Sweating, Nausea / vomiting, Anxiety, sense of impending doom
- Elevated cardiac biomarkers
- 📌 Prolonged pain + sweating = MI

- NSTEMI - +/- ST depression
- STEMI - ST elevation

Variant (Prinzmetal) angina

- Chest pain at rest
- Occurs at night or early morning
- Due to coronary vasospasm
- Transient ST elevation
- 📌 Rest pain + ST elevation that resolves

ECG-based MCQ presentations

- Ischemia - ST depression, T-wave inversion
- STEMI - ST elevation, Pathological Q waves (later)
- NSTEMI - ST depression / T-wave inversion, Raised troponins

Atrial Fibrillation Typical patient profile

- Age > 60 years
- History of:
    - Hypertension
    - Ischemic heart disease
    - Valvular disease (especially mitral stenosis)
    - Heart failure
    - Hyperthyroidism
- 📌 Buzzword: elderly patient with cardiac disease

Common presenting symptoms of AFib

- Palpitations (irregular, rapid)
- Dyspnea on exertion
- Fatigue
- Dizziness / light-headedness
- Chest discomfort
- Reduced exercise tolerance
- 📌 Irregular palpitations = AF

Classic examination findings

- Irregularly irregular pulse
- Variable pulse volume
- Pulse deficit (apical rate > radial rate)
- Tachycardia
- 📌 Irregularly irregular = AF until proven otherwise

ECG-based MCQ presentation

- Absent P waves
- Irregularly irregular RR intervals

- Fibrillatory (f) waves
- Narrow QRS complexes (unless aberrancy)
- 📌 No P waves + irregular rhythm = AF

Sinus tachycardia

- Palpitations
- Anxiety, fever, pain, anemia, thyrotoxicosis
- Gradual onset and offset
- Normal P waves
- HR > 100 bpm
- 📌 Physiological cause + regular rhythm

Sinus bradycardia

- Athlete or elderly
- Dizziness, fatigue
- Syncope if severe
- HR < 60 bpm
- Normal P waves
- 📌 Athlete or inferior MI

Atrial fibrillation

- Irregular palpitations
- Dyspnea
- Stroke / TIA
- Irregularly irregular
- No P waves
- 📌 Irregularly irregular = AF

Atrial flutter

- Palpitations
- Often asymptomatic
- May cause heart failure symptoms
- Saw-tooth flutter waves
- Often 2:1 block (HR ≈ 150)
- 📌 Regular tachycardia at 150 bpm

Supraventricular tachycardia (SVT)

- Sudden onset and termination
- Young patient
- Palpitations, dizziness
- Narrow complex tachycardia
- Regular rhythm
- 📌 Sudden racing heart in young patient

Ventricular tachycardia (VT)

- Elderly
- History of MI
- Syncope / hypotension
- Wide QRS tachycardia
- AV dissociation
- P waves usually absent or AV dissociation (atria and ventricles beat independently)
- 📌 Wide complex tachycardia = VT until proven otherwise

Ventricular fibrillation (VF)

- Sudden cardiac arrest
- Collapse
- No pulse
- Chaotic, irregular waveform
- No identifiable QRS
- 📌 Medical emergency

Torsades de pointes

- Syncope
- Seizure-like activity
- Sudden collapse
- Polymorphic VT
- Prolonged QT
- 📌 Long QT + syncope

Premature ventricular complexes (PVCs)

- “Missed beats”
- Palpitations
- Often asymptomatic
- Wide premature QRS
- Compensatory pause
- 📌 Benign unless frequent

First-degree AV block

- Usually asymptomatic
- Prolonged PR interval

Second-degree AV block (Mobitz I)

- Dizziness
- Wenckebach phenomenon
- 📌 Progressive PR prolongation

Second-degree AV block (Mobitz II)

- Syncope

- Sudden dropped beats
- 📌 Dangerous → pacing

Complete heart block
- Syncope (Stokes-Adams attack)
- Severe bradycardia
- Fatigue
- AV dissociation - cannon A waves
- 📌 Syncope + very slow pulse

Brady-tachy syndrome (sick sinus)
- Elderly
- Alternating bradycardia and AF/SVT
- Syncope

Arrhythmia-based MCQ scenarios
- Post-MI + wide tachycardia → VT
- Young patient + sudden palpitations → SVT
- Elderly + syncope + bradycardia → heart block
- Stroke + irregular pulse → AF
- Collapse + no pulse → VF

Electrolyte-related arrhythmia clues
- Hypokalemia → U waves, arrhythmias
- Hyperkalemia → tall T waves, sine wave
- Hypomagnesemia → torsades

Mitral stenosis (MS)
- Young female
- Rheumatic fever history
- Progressive dyspnea
- Orthopnea, PND
- Hemoptysis
- Palpitations (due to AF)
- Malar flush
- Loud S1
- Opening snap
- Mid-diastolic murmur
- 📌 Dyspnea + hemoptysis + AF → MS

Mitral regurgitation (MR)
- Dyspnea
- Fatigue
- Palpitation

- Acute MR → pulmonary edema
- Rheumatic disease
- Papillary muscle rupture (post-MI)
- MVP
- Pansystolic murmur radiating to axilla
- 📌 Post-MI + sudden pulmonary edema → acute MR

Aortic stenosis (AS)
- Elderly patient
- Exertional: Angina, Syncope, Dyspnea (SAD)
- Pulsus parvus et tardus
    - Small amplitude (parvus)
    - Delayed peak (tardus)
- Slow rising pulse
- Narrow pulse pressure
- Ejection systolic murmur radiating to neck
- 📌 Angina + syncope + dyspnea → AS
- Elderly patient, systolic murmur radiating to carotids + weak, delayed carotid pulse

Aortic regurgitation (AR)
- Dyspnea
- Palpitations
- Awareness of heartbeat
- Worse on exertion
- Wide pulse pressure
- Water-hammer pulse
- Head bobbing (de Musset sign)
- 📌 Bounding pulse + wide PP → AR

Tricuspid regurgitation (TR)
- Right heart failure:Pedal edema, Ascites, Hepatomegaly
- Murmur ↑ with inspiration (Carvallo sign)
- JVP with prominent V waves
- 📌 IV drug user + pansystolic murmur → TR

Tricuspid stenosis (TS)
- Fatigue
- Abdominal distension
- Peripheral edema
- 📌 Often with mitral stenosis

Pulmonary stenosis
- Congenital
- Exertional dyspnea

- Cyanosis (severe cases)

Pulmonary regurgitation
- Secondary to pulmonary hypertension
- Right heart failure signs

Carotid pulse
- Slow & delayed (parvus et tardus) - Aortic stenosis
- Bounding / collapsing (water hammer pulse) - Aortic regurgitation
- Double peak - HCM, AS + AR
- Spike & dome - HCM

TETRALOGY OF FALLOT
- Infant or child
- Cyanotic spells (Tet spells)
- Squatting relieves symptoms
- Exertional dyspnea
- Syncope during crying or feeding
- Harsh systolic murmur
- Boot-shaped heart on CXR
- 📌 Blue baby who squats → TOF

TRANSPOSITION OF GREAT ARTERIES
- Severe cyanosis at birth
- Cyanosis not relieved by oxygen
- Respiratory distress soon after birth
- Egg-on-side heart on CXR
- Needs PDA/ASD/VSD to survive
- 📌 Severe neonatal cyanosis → TGA

TRICUSPID ATRESIA
- Cyanosis from birth
- Failure to thrive
- Decreased pulmonary blood flow
- Single S2
- Requires ASD for survival
- 📌 Cyanosis + absent tricuspid valve

TOTAL ANOMALOUS PULMONARY VENOUS CONNECTION
- Cyanosis
- Respiratory distress
- Poor feeding
- Snowman sign (supracardiac type)
- Needs ASD

- 📌 Cyanosis + pulmonary edema → TAPVC

PULMONARY ATRESIA
- Severe cyanosis at birth
- No murmur (or faint murmur)
- Duct-dependent lesion
- 📌 Cyanotic newborn needing PDA

EBSTEIN ANOMALY
- Cyanosis
- Arrhythmias
- Heart failure
- Downward displacement of tricuspid valve
- Association with maternal lithium use
- 📌 Cyanosis + arrhythmia + lithium exposure

TRUNCUS ARTERIOSUS
- Mild cyanosis
- Heart failure early in life
- Single arterial trunk
- 📌 Single vessel leaving heart

VENTRICULAR SEPTAL DEFECT (VSD)
- Poor feeding
- Excessive sweating
- Recurrent respiratory infections
- Harsh pansystolic murmur at left lower sternal border
- Loud P2 - due to pulmonary HTN
- 📌 Loud murmur, small baby → VSD

Secundum ASD
- Often asymptomatic in childhood
- Dyspnea on exertion in adolescence/adulthood
- Recurrent respiratory infections
- Fixed wide split S2
- Ejection systolic murmur (flow murmur)
- 📌 Fixed split S2 = ASD

Patent Ductus Arteriosus (PDA)
- Preterm infant
- Bounding pulses
- Wide pulse pressure
- Continuous machinery murmur
- 📌 Continuous murmur + bounding pulse = PDA

Atrioventricular septal defect (AVSD)

- Infant with heart failure
- Failure to thrive
- Commonly associated with Down syndrome
- 📌 Down syndrome + CHF → AVSD

Coarctation of Aorta

- Hypertension in upper limbs
- Weak or delayed femoral pulses
- Leg claudication
- Headaches
- 📌 BP difference between arms and legs

Pulmonary stenosis (mild cases are acyanotic)

- Exertional dyspnea
- Ejection systolic murmur
- Thrill at left upper sternal border

PERICARDITIS

- Young or middle-aged adult
- Recent viral illness
- Post-MI
- Autoimmune disease
- Uremia
- Tuberculosis (in endemic areas)
- 📌 Recent fever/viral illness + chest pain → think pericarditis
- Sharp, stabbing chest pain
- Worse on inspiration (pleuritic)
- Worse when lying flat
- Relieved by sitting up and leaning forward
- May radiate to shoulder or trapezius ridge
- 📌 Pain better on leaning forward = pericarditis

Physical examination findings in PERICARDITIS

- Pericardial friction rub (pathognomonic)
- Scratchy, grating sound
- Best heard at left lower sternal border
- Louder when patient leans forward
- 📌 Triphasic rub = pericarditis

ECG findings PERICARDITIS

- Diffuse ST-segment elevation (concave)
- PR-segment depression

- No reciprocal ST depression (except aVR)
- 📌 Diffuse ST elevation + PR depression = pericarditis

“Beck’s HAT” in Cardiac Tamponade
- Hypotension
- Alternans (electrical)
- Tamponade triad: JVD + muffled heart sounds

Cardiac Tamponade
- Rapidly progressive hypotension + JVD + muffled heart sounds → tamponade
- Pulsus paradoxus >10 mmHg → classic sign
- Electrical alternans on ECG → pathognomonic
- Treatment: emergency pericardiocentesis

Infective Endocarditis
- Fever (most common)
- Weight loss, malaise
- Night sweats
- New or changing murmur
- Heart failure symptoms
- Osler nodes → painful, immune complex
- Janeway lesions → painless, septic emboli
- Splinter hemorrhages
- Roth spots (retinal hemorrhages)

Risk Factors & Predisposing Conditions
- Prosthetic heart valves
- Rheumatic heart disease
- Congenital heart disease (VSD, PDA, TOF)
- IV drug use → Right-sided IE
- Poor dental hygiene / recent dental procedures
- Hemodialysis patients
- Immunosuppression
- 👉 MCQ clue: IV drug abuser with fever → think right-sided IE

Causative Organisms
- Native Valve IE
    - Streptococcus viridans → dental procedures
    - Staphylococcus aureus → acute, aggressive
    - Enterococcus → elderly, GU/GI procedures
- Prosthetic Valve IE
    - Early (<60 days): Staph epidermidis
    - Late (>60 days): Strep viridans, S. aureus

- Special Associations
    - IV drug user - Staph aureus
    - Dental procedure - Strep viridans
    - Colonic malignancy - Strep bovis (S. gallolyticus)
    - Culture-negative IE - Coxiella burnetii, Bartonella, HACEK

Duke's Criteria (classic theory MCQs)

- Major Criteria
    - Positive blood cultures
    - Evidence of endocardial involvement (vegetation on echo)
- Minor Criteria
    - Predisposing heart condition / IV drug use
    - Fever
    - Vascular phenomena
    - Immunologic phenomena
    - Microbiological evidence
- 👉 Diagnosis: 2 major OR 1 major + 3 minor

One-Liner MCQ Pearls

- Most common cause of acute IE → Staph aureus
- Most common valve involved → Mitral
- Most sensitive test → TEE
- Painful nodules on fingers → Osler nodes
- Painless palm lesions → Janeway lesions

MANEUVERS

Inspiration

- ↑ Venous return to RIGHT heart
- ↓ Venous return to left heart
- Right-sided murmurs get louder
- Left-sided murmurs get softer
- 🧠 MCQ trick: Inspiration = RIGHT

Expiration

- ↑ Blood in LEFT heart
- Left-sided murmurs louder
- Right-sided softer

Valsalva (Straining phase)

- ↓ Venous return to heart
- ↓ LV volume
- Most murmurs become softer EXCEPT:

    - Hypertrophic cardiomyopathy (HCM) → louder
    - Mitral valve prolapse (MVP) → louder & earlier click
    - Why? Smaller LV → more obstruction/prolapse

Standing (from squatting)

- ↓ Venous return
- ↓ LV volume
- 🔑 SAME EFFECT as Valsalva:
- Most murmurs ↓
- HCM & MVP ↑

Squatting

- ↑ Venous return
- ↑ Afterload
- ↑ LV volume
- Most murmurs get louder EXCEPT:
    - HCM → softer
    - MVP → softer & delayed click

Handgrip

- ↑ Afterload (systemic vascular resistance)
- LV works harder to eject blood
- Murmurs of regurgitation get louder
- Murmurs of outflow obstruction get softer

ONE-LINE MCQ MEMORY TRICKS

- Inspiration → Right-sided murmurs
- Handgrip → Regurgitation
- Valsalva → HCM + MVP louder
- Squatting → Everything louder except HCM & MVP

IF YOU REMEMBER ONLY 5 THINGS, REMEMBER THESE

- Inspiration → TR louder
- Handgrip → MR & AR louder
- Valsalva → HCM louder
- Squatting → HCM softer
- MVP click moves earlier when LV volume decreases

Respiratory

COPD

- Age > 40 years

- Chronic smoker (pack-years often mentioned)
- Progressive breathlessness over years
- Symptoms worse in winter
- 📌 MCQ buzzwords: elderly smoker + chronic dyspnea

Chronic Bronchitis

- Productive cough ≥ 3 months for 2 consecutive years
- Copious sputum
- Recurrent chest infections
- Cyanosis (“blue bloater”)
- Peripheral edema (cor pulmonale)
- Overweight appearance

Emphysema

- Progressive dyspnea
- Minimal cough and sputum
- Thin, cachectic patient
- Barrel-shaped chest
- Pursed-lip breathing
- Use of accessory muscles
- 📌 MCQ buzzword: pink puffer

Exacerbation of COPD

- Sudden ↑ dyspnea
- ↑ sputum volume
- ↑ sputum purulence
- Triggered by infection or pollution
- Wheeze, tachypnea
- Hypoxia ± hypercapnia
- 📌 MCQ may ask GOLD criteria for exacerbation

Physical examination findings

- Decreased breath sounds
- Hyperresonant percussion note
- Flattened diaphragm
- Hoover’s sign
- Trachea usually central

Radiology-based presentation of COPD

- Hyperinflated lungs
- Flattened diaphragms
- Increased retrosternal air space
- Narrow, vertical heart

Asthma

- Child / young adult
- Personal or family history of atopy (eczema, allergic rhinitis)
- Non-smoker
- Recurrent episodes with symptom-free intervals
- 📌 MCQ buzzword: young atopic patient with episodic symptoms

Classic symptom pattern in asthma

- Episodic wheeze
- Shortness of breath
- Chest tightness
- Cough worse at night or early morning
- 📌 Night/early-morning symptoms = asthma

Acute asthma exacerbation

- Sudden worsening dyspnea
- Wheeze
- Inability to complete sentences
- Tachypnea, tachycardia
- Use of accessory muscles
- Pulsus paradoxus

Severe / life-threatening asthma (status asthmaticus)

- Silent chest (no wheeze)
- Severe hypoxia
- Exhaustion
- Altered mental status
- Rising $PaCO_2$
- 📌 Silent chest = medical emergency

Bronchiectasis

- History of recurrent childhood chest infections
- Chronic symptoms for years
- May be young or middle-aged
- Non-smoker or smoker
- 📌 MCQ buzzword: recurrent infections since childhoood

Classic symptom triad of Bronchiectasis

- Chronic productive cough
- Large amounts of purulent, foul-smelling sputum
- Recurrent exacerbations
- 📌 Copious purulent sputum = bronchiectasis

Physical examination findings of Bronchiectasis

- Coarse crackles (basal, persistent)
- Wheeze
- Digital clubbing (important)
- Halitosis
- 📌 Clubbing + productive cough = bronchiectasis

Chest X-ray of Bronchiectasis

- Tram-track opacities
- Ring shadows
- Cystic spaces ± air-fluid levels
- Lower lobe predominance

HRCT (gold standard) for bronchiectasis

- Dilated bronchi
- Signet ring sign
- Lack of bronchial tapering

Management-linked MCQs for bronchiectasis

- Postural drainage
- Chest physiotherapy
- Antibiotics for exacerbations
- Vaccinations (influenza, pneumococcal)

Typical patient profile for Cystic fibrosis

- Child or adolescent
- Recurrent illness since infancy
- Often failure to thrive
- Family history of similar illness / sibling death
- 📌 MCQ buzzword: child with recurrent chest infections + poor growth

Classic organ involvement triad in Cystic fibrosis

- Recurrent respiratory infections
- Pancreatic insufficiency
- Malabsorption
- 📌 Lungs + pancreas = cystic fibrosis

Respiratory presentations in Cystic fibrosis

- Chronic productive cough
- Recurrent pneumonia
- Bronchiectasis (early onset)
- Wheeze
- Hemoptysis (later)
- 📌 Bronchiectasis in a child = CF until proven otherwise

Typical patient profile for lung neoplasms

- Age > 50 years
- Heavy smoker
- Weight loss, anorexia
- Persistent or worsening symptoms
- 📌 Buzzwords: elderly smoker + weight loss

Common presenting symptoms for lung neoplasms

- Chronic cough (change in pattern)
- Hemoptysis
- Progressive dyspnea
- Chest pain (pleural or chest wall invasion)
- Recurrent or non-resolving pneumonia
- 📌 MCQ clue: pneumonia in same lobe repeatedly

Local tumor effects for lung neoplasms

- Hoarseness → recurrent laryngeal nerve palsy
- Diaphragmatic paralysis → phrenic nerve involvement
- Dysphagia → esophageal compression
- Pleural effusion (often hemorrhagic)

Superior vena cava (SVC) syndrome

- Facial puffiness
- Distended neck veins
- Cyanosis
- Headache, dizziness
- 📌 Commonly due to small cell lung carcinoma

Metastatic disease presentations

- Bone pain / fractures
- Brain mets → headache, seizures
- Liver mets → hepatomegaly, weight loss
- Supraclavicular lymphadenopathy

Pleural effusion

- Progressive dyspnea
- Pleuritic chest pain (sharp, worse on inspiration)
- Dry cough
- Reduced exercise tolerance
- 📌 Buzzword: breathlessness + pleuritic pain

Physical examination findings in Pleural effusion

- Reduced chest expansion on affected side

- Stony dull percussion note
- Decreased / absent breath sounds
- Decreased vocal fremitus
- Bronchial breathing just above fluid level
- 📌 Stony dullness = pleural effusion

Chest X-ray

- Blunting of costophrenic angle
- Homogeneous opacity
- Meniscus sign
- White-out hemithorax (massive effusion)
- Mediastinal shift away (large effusion)
- 📌 Meniscus sign = pleural effusion

Pneumothorax

- Young, tall, thin male → primary spontaneous pneumothorax
- Smoker / COPD patient → secondary pneumothorax
- Trauma / procedure (central line, ventilation) → traumatic/iatrogenic
- Sudden onset unilateral chest pain
- Acute shortness of breath
- Dry cough
- Anxiety
- Reduced chest expansion on affected side
- Hyperresonant percussion note
- Decreased / absent breath sounds
- Decreased vocal fremitus

Tension pneumothorax

- Severe respiratory distress
- Hypotension
- Tachycardia
- Cyanosis
- Tracheal deviation away
- Distended neck veins
- Hyperresonant hemithorax
- Absent breath sounds
- 📌 Shift away + shock = tension pneumothorax

INTERSTITIAL LUNG DISEASES

- Age 40–70 years
- Progressive symptoms over months–years
- Often non-smoker (except IPF can be ex-smoker)
- Occupational / environmental exposure history
- 📌 Buzzword: slowly progressive breathlessness

- Progressive exertional dyspnea
- Dry (non-productive) cough
- Fatigue
- Weight loss (late)

Physical examination findings in ILDs

- Fine end-inspiratory “Velcro” crackles (bibasal)
- Digital clubbing (esp. IPF)
- Reduced chest expansion
- Signs of pulmonary hypertension (late)
- 📌 Velcro crackles = ILD

Occupational / exposure-related ILD

- Silicosis: upper-lobe nodules, egg-shell calcification
- Asbestosis: lower-lobe fibrosis, pleural plaques
- Coal worker’s pneumoconiosis

Hypersensitivity pneumonitis

- Dyspnea, cough after exposure
- Farmer, bird breeder
- Flu-like symptoms (acute form)
- Ground-glass opacities

Sarcoidosis

- Young adult
- Dry cough
- Bilateral hilar lymphadenopathy
- Erythema nodosum

ILD vs COPD

- Cough: dry (ILD) vs productive (COPD)
- Spirometry: restrictive vs obstructive
- Crackles: fine Velcro vs coarse
- Smoking: not necessary (ILD)

RESPIRATORY FAILURE

- Type 1 (Hypoxemic): PaO_2 < 60 mmHg, normal/low $PaCO_2$
- Type 2 (Hypercapnic / ventilatory failure): $PaCO_2$ > 50 mmHg, PaO_2 may be low
- Acute or chronic dyspnea
- Often underlying lung disease (COPD, ILD, pneumonia)
- Could be trauma, neuromuscular disease, or post-op
- Shortness of breath / dyspnea
- Confusion / altered sensorium

- Cyanosis (central or peripheral)
- Fatigue, morning headache (chronic type 2)
- Tachypnea or bradypnea (severe hypercapnia)
- Flapping tremor (asterixis) in chronic CO_2 retention
- Peripheral edema if chronic right heart failure develops

Pulmonary Embolism

- Sudden onset symptoms
- Recent immobilization / surgery
- Post-partum / pregnancy
- Oral contraceptive use
- Malignancy
- Previous DVT / PE
- 📌 Buzzwords: sudden + risk factor for thrombosis

Classic presenting symptoms of PE

- Sudden dyspnea (most common)
- Pleuritic chest pain
- Hemoptysis
- Cough
- Anxiety, sense of impending doom
- 📌 Dyspnea + pleuritic pain = PE until proven otherwise

ABG-based presentations

- Hypoxemia
- Respiratory alkalosis (↓ $PaCO_2$)
- Widened A–a gradient
- 📌 Low O_2 + low CO_2 = PE

Investigation-based MCQs for PE

- Raised D-dimer
- CT pulmonary angiography = investigation of choice
- V/Q scan (pregnancy, contrast allergy)
- Echo: RV dilatation (massive PE)

ECG findings in PE

- Sinus tachycardia (most common)
- S1Q3T3 pattern
- Right axis deviation
- T-wave inversion in V1–V3
- 📌 S1Q3T3 = classic but uncommon

Chest X-ray clues for PE

- Normal CXR (most common)

- Westermark sign (oligemia)
- Hampton's hump (wedge-shaped opacity)
- Small pleural effusion
- 📌 Normal CXR + hypoxia = think PE

Pneumonia

- Any age (elderly & children common)
- Recent URTI
- Risk factors: smoking, alcoholism, diabetes, immunosuppression, aspiration
- 📌 Buzzword: fever + cough + dyspnea

- Fever with chills/rigors
- Productive cough
- Pleuritic chest pain
- Dyspnea
- Malaise, myalgia
- 📌 Triad: fever + cough + chest pain

Physical examination findings in pneumonia

- Bronchial breathing
- Crackles / crepitations
- Dullness to percussion
- ↑ Vocal fremitus / resonance
- Tachypnea, tachycardia
- 📌 Bronchial breathing = consolidation

Lobar pneumonia

- Sudden onset high fever
- Rust-colored sputum
- Pleuritic chest pain
- Streptococcus pneumoniae
- 📌 Rusty sputum = pneumococcal pneumonia

Bronchopneumonia

- Gradual onset
- Patchy symptoms
- Elderly / debilitated patients
- Multiple lobes involved
- 📌 Patchy infection in elderly

Atypical pneumonia

- Low-grade fever
- Dry cough
- Headache, myalgia

- Minimal chest signs
- Disproportionate dyspnea
- Mycoplasma → young adults
- Chlamydia
- Legionella → diarrhea, hyponatremia
- 📌 Dry cough + normal exam

Special exam scenarios for pneumonia

- Immunocompromised patient → Pneumocystis jirovecii (dry cough, hypoxia)
- Alcoholic → Klebsiella (currant jelly sputum)
- Post-influenza → Staphylococcus aureus

Tuberculosis

- Young or middle-aged adult
- From TB-endemic area
- Low socioeconomic status / overcrowding
- Immunocompromised (HIV, diabetes, steroids)
- 📌 Buzzwords: endemic area + chronic symptoms
- Low-grade evening fever
- Night sweats
- Weight loss
- Loss of appetite
- Fatigue
- 📌 Evening rise of temperature = TB

Pulmonary TB – classic presentation

- Chronic cough > 2–3 weeks
- Hemoptysis
- Sputum production
- Chest pain
- Progressive dyspnea (late)
- 📌 Chronic cough + hemoptysis = TB

Primary TB

- More common in children
- Often asymptomatic
- Hilar lymphadenopathy
- Lower or middle lobe involvement
- Pleural effusion
- 📌 Child + hilar nodes = primary TB

secondary TB

- Adults
- Reactivation disease

- Upper lobe involvement
- Cavitation
- Fibrosis and volume loss
- 📌 Upper lobe cavity = secondary TB

TB in immunocompromised (HIV)

- Atypical presentation
- Lower lobe involvement
- Minimal cavitation
- Extrapulmonary TB common
- 📌 HIV + atypical CXR = TB