

Block O Investigations

Pneumonia

- Initial investigation → Chest X-ray
- Etiological diagnosis → Sputum culture
- Severe pneumonia → Blood cultures
- Pneumocystis jirovecii pneumonia → BAL with silver stain

Pulmonary Tuberculosis

- Initial investigation → Sputum AFB smear
- Gold standard → Mycobacterial culture
- Miliary TB → HRCT chest

Lung Abscess

- Diagnostic X-ray finding → Cavity with air–fluid level
- Best investigation for diagnosis → Sputum culture
- Non-resolving abscess → CT chest / bronchoscopy

Empyema

- Diagnostic test → Pleural fluid analysis
- Best imaging → Ultrasound chest

Bronchial Asthma

- Best test for diagnosis → Spirometry
- Confirmatory feature → Reversibility after bronchodilator
- Monitoring control → PEFr
- Allergen identification → Serum IgE / skin prick test

COPD

- Best diagnostic test → Spirometry
- Severity assessment → FEV₁
- Chronic respiratory failure → ABG
- Bullous disease → HRCT chest

INTERSTITIAL LUNG DISEASE (ILD)

- Best investigation → HRCT chest
- Idiopathic pulmonary fibrosis → HRCT showing honeycombing
- Definitive diagnosis → Lung biopsy
- Disease severity → DLCO on PFT

Bronchiectasis

- Investigation of choice → HRCT chest
- Sputum evaluation → Culture & sensitivity
- Cause evaluation → Serum Ig levels

Pulmonary Embolism

- Best investigation → CT Pulmonary Angiography (CTPA)
- Screening test → D-dimer
- Unstable patient → Echocardiography

Pulmonary Hypertension

- Initial screening → Echocardiography
- Gold standard → Right heart catheterization
- Cause evaluation → CT chest / V/Q scan

Pleural Effusion

- First diagnostic test → Diagnostic thoracentesis
- Exudate vs transudate → Light's criteria
- TB effusion → Pleural fluid ADA
- Malignancy → Pleural fluid cytology
- Loculated effusion → Ultrasound chest

Pneumothorax

- Diagnosis → Chest X-ray
- Small pneumothorax → CXR expiratory view
- Secondary pneumothorax → CT chest

LUNG CANCER

- Initial investigation → Chest X-ray
- Best imaging → CT chest
- Tissue diagnosis → Bronchoscopy with biopsy
- Peripheral lesion → CT-guided FNAC
- Staging → PET-CT

RESPIRATORY FAILURE / ICU

- Type 1 respiratory failure → ABG
- Type 2 respiratory failure → ABG
- ARDS diagnosis → PaO₂ / FiO₂ ratio

Sarcoidosis

- Best investigation → HRCT chest
- Supportive test → Serum ACE levels
- Definitive diagnosis → Biopsy (non-caseating granulomas)

ISCHEMIC HEART DISEASE (IHD)

- Investigation of choice for acute MI → ECG
- Most sensitive early marker of MI → Troponin I / T
- Marker that rises earliest → Myoglobin

- Gold standard for diagnosis of CAD → Coronary angiography
- Screening test for stable angina → Exercise stress test
- Stress test contraindicated in → Unstable angina / acute MI
- Investigation of choice in post-MI complications → Echocardiography
- Best test to assess myocardial viability → Cardiac MRI / PET
- Risk stratification after MI → Stress testing
- Intravascular ultrasound and optical coherence tomography are used during coronary angiography to assess plaque composition, burden, and vulnerability beyond luminal narrowing.

ARRHYTHMIAS

- First investigation in any arrhythmia → ECG
- Best test for intermittent arrhythmias → Holter monitoring
- Investigation of choice for syncope due to arrhythmia → Holter / Event recorder
- Gold standard to identify arrhythmia mechanism → Electrophysiological study (EPS)
- AF confirmation → ECG showing absent P waves + irregularly irregular rhythm
- WPW diagnosis → ECG (short PR, delta wave)
- Evaluation of structural cause → Echocardiography
- Drug-induced arrhythmia suspicion → Serum electrolytes + drug levels

CONGESTIVE HEART FAILURE (CHF)

- First-line investigation → Echocardiography
- Marker of heart failure severity → BNP / NT-proBNP
- Screening test in dyspnea → Chest X-ray
- Pulmonary edema on X-ray → Bat-wing appearance
- Gold standard for cardiac output measurement → Right heart catheterization
- Cause identification in CHF → Echo + coronary angiography
- Baseline investigations → CBC, RFTs, LFTs, electrolytes, TSH

Dilated Cardiomyopathy

- Investigation of choice → Echocardiography
- Findings → Dilated chambers + reduced EF
- Rule out ischemic cause → Coronary angiography

Hypertrophic Cardiomyopathy

- Diagnostic test of choice → Echocardiography
- Confirm genetic etiology → Genetic testing
- ECG finding → LVH with deep Q waves
- Risk stratification for SCD → Holter + Echo

Restrictive Cardiomyopathy

- Best imaging → Cardiac MRI
- Echo finding → Diastolic dysfunction with normal EF
- Differentiate from constrictive pericarditis → Cardiac catheterization

MYOCARDITIS

- Initial investigation → ECG
- Most sensitive test → Cardiac MRI
- Biomarker elevation → Troponin
- Gold standard for diagnosis → Endomyocardial biopsy
- Echo role → Assess LV dysfunction
- Viral myocarditis identification → PCR / serology (supportive)

PERICARDITIS

- Investigation of choice → ECG
- Classic ECG finding → Diffuse ST elevation + PR depression
- Confirmatory imaging → Echocardiography
- Best test for pericardial inflammation → Cardiac MRI
- Etiology evaluation → ESR, CRP
- TB pericarditis confirmation → Pericardial fluid ADA

PERICARDIAL EFFUSION

- Investigation of choice → Echocardiography
- Best test for tamponade → Echocardiography
- Chest X-ray finding → Water bottle heart
- CT/MRI role → Assess loculated effusion
- Diagnostic test for etiology → Pericardiocentesis
- ECG finding → Electrical alternans

BACTERIAL (INFECTIVE) ENDOCARDITIS

- Most important investigation → Blood cultures (3 sets)
- Gold standard imaging → Transesophageal echo (TEE)
- Initial echo → Transthoracic echo (TTE)
- Modified Duke criteria includes → Blood cultures + Echo
- Culture-negative endocarditis → Serology (Coxiella, Bartonella)
- Inflammatory markers → Raised ESR, CRP
- Urine finding → Microscopic hematuria

DEEP VEIN THROMBOSIS (DVT)

- Investigation of choice → Compression Doppler ultrasound
- Screening test → D-dimer
- Gold standard → Contrast venography
- High Wells score + positive D-dimer → Proceed to Doppler
- Pregnancy investigation → Compression ultrasound
- Suspected PE from DVT → CT pulmonary angiography

COARCTATION OF AORTA

- Initial investigation → Echocardiography

- Best imaging modality → CT angiography / MRI
- Chest X-ray finding → Rib notching
- ECG finding → LVH
- BP measurement → Upper limb > lower limb BP
- Cardiac catheterization → Pre-operative evaluation

SYSTEMIC HYPERTENSION

- Diagnosis confirmation → Repeated BP measurements
- Screening test → Ambulatory BP monitoring (ABPM)
- Target organ damage assessment → ECG + Echo
- Renal cause evaluation → RFTs + Urinalysis
- Secondary hypertension screening → Serum electrolytes
- Renal artery stenosis investigation of choice → CT angiography
- Pheochromocytoma test of choice → Plasma free metanephrines
- Primary hyperaldosteronism screening → Aldosterone-renin ratio

