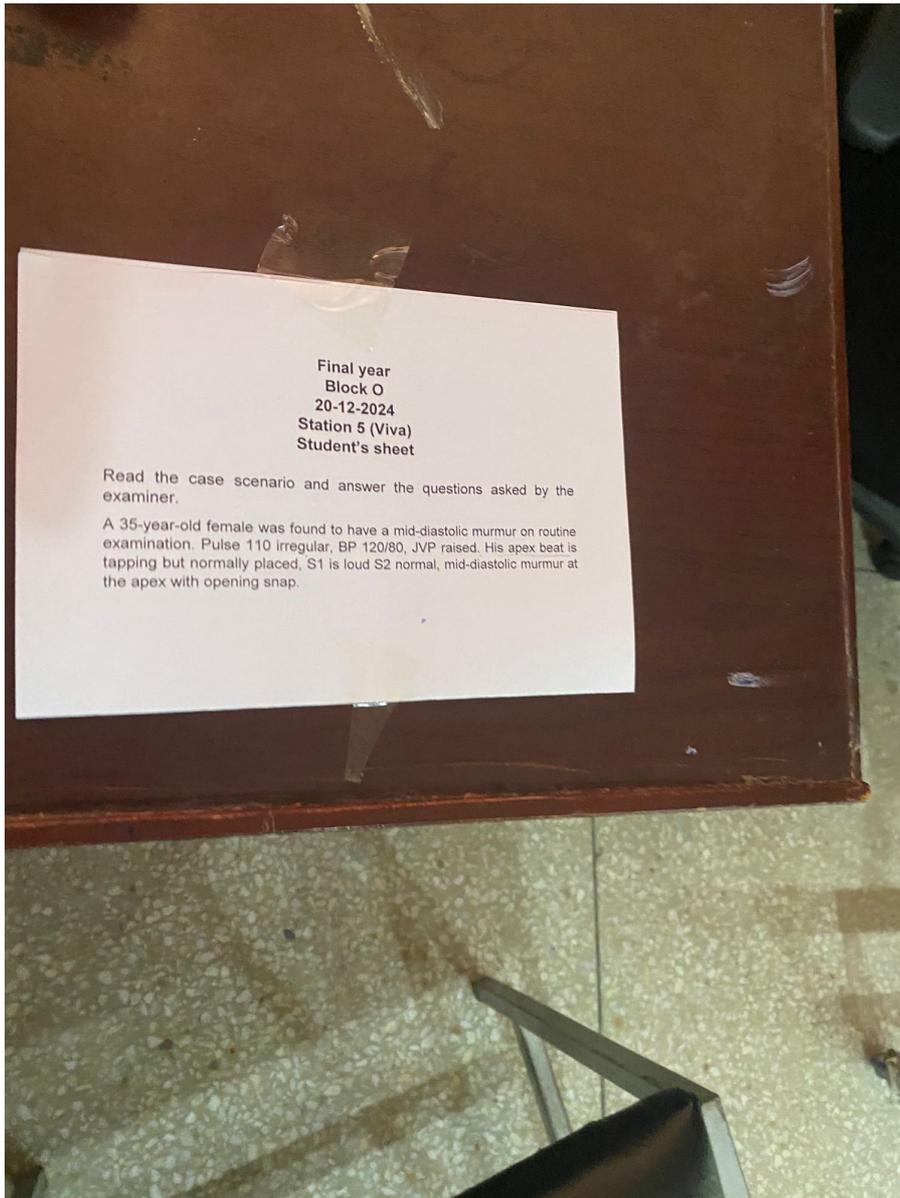


STATION



DIAGNOSIS=Mitral Stenosis

1. Causes

Rheumatic heart disease (most common) Congenital, calcification, endocarditis

2. Symptoms*

Dyspnea, orthopnea, palpitations, fatigue Hemoptysis, right heart



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failure signs (late stage)

3. Signs*

malar FACIES

✓ *Mid-diastolic murmur* (Apex, with opening snap) ✓ **Loud S1,
pulmonary hypertension signs__loud P2
gham steell murmur(decrescendo diastolic murmur)

4. Investigations

✓ Echocardiography* – Confirms severity

✓ *ECG* – LA enlargement, AF Chest X-ray** – LA enlargement,
pulmonary congestion,p mitral

*5. Management

✓ *Medical:* Diuretics, beta-blockers, anticoagulation (if AF) ✓

Intervention: Balloon valvuloplasty, valve replacement (if severe)



Final year
Block O
20-12-2024
Station 1 (Viva)
Student Sheet

Read the case scenario and answer the questions asked by the examiner.

A 40-year-old male hypertensive, diabetic, and smoker presented with central chest pain at rest, sweating, and nausea. The pain has not settled with sublingual nitrates. Pulse 90, BP 140/90, JVP normal, and normal examination of CVS & respiratory system. ECG shows left ventricular hypertrophy and T waves inversion V1 to V6. Cardiac enzymes and trop I are normal.

STATION 3 INTERACTIVE STATION ABOUT UNSTABLE ANGINA

- 1) DIAGNOSIS
UNSTABLE ANGINA
- 2) MANAGEMENT PLANS



Treatment of Myocardial Infarction (MI) – Bullet Points

1. Immediate (MONA Protocol)

- ✓ Morphine
- ✓ Oxygen (if SpO₂ <90%)
- ✓ Nitroglycerin (Avoid if hypotensive/RV MI)
- ✓ Aspirin 300 mg

3. Antiplatelet & Anticoagulation

- ✓ Aspirin + Clopidogrel/Ticagrelor (DAPT)
- ✓ Heparin/Enoxaparin

4. Additional Medications

- ✓ Beta-Blockers
- ✓ ACE Inhibitors
- ✓ Statins

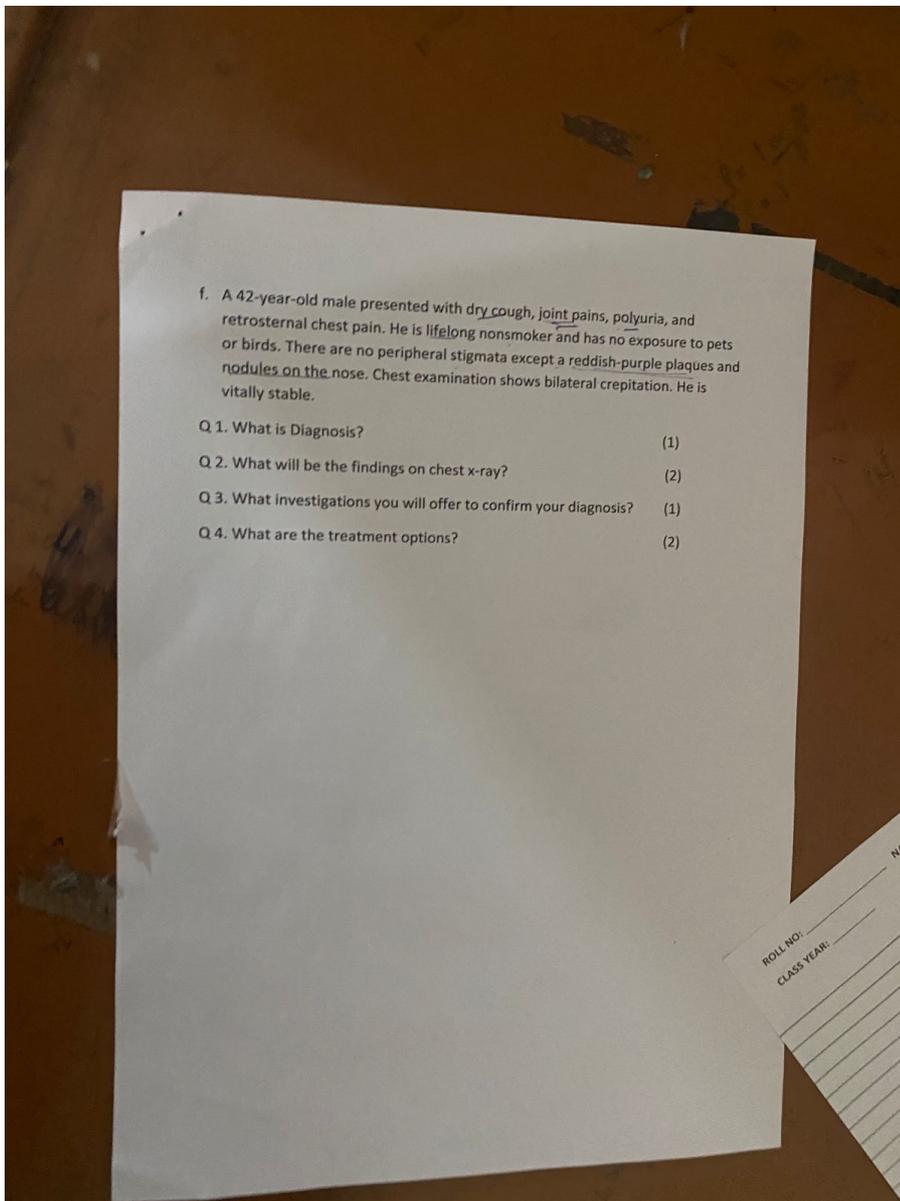
5. Monitoring & Long-Term Care

- ✓ ECG, Troponins, Echo
- ✓ BP & Glucose Control
- ✓ Lifestyle Changes & Cardiac Rehab

STATION 4

SARCOIDOSIS





Sarcoidosis

1. Cause

- Unknown (granulomatous inflammatory disease)

2. Organs Affected

- Lungs (most common), lymph nodes, skin(erythema nodosum), eyes(anterior uveitis) heart(arrhythmias,conduction block,sudden death) CNS(bell's palsy,optic nerve dysfunction,papilledema,peripheral neuropathy)

3. Symptoms

- Cough, dyspnea, fatigue, weight loss
- Erythema nodosum, uveitis, arrhythmias



4. Investigations

- ✓ Chest X-ray – Bilateral hilar lymphadenopathy
- ✓ Serum ACE – Elevated
- ✓ Calcium levels – Hypercalcemia/hypercalciuria, lymphopenia, elevated ESR and Ig
- ✓ Biopsy – Non-caseating granulomas

5. Management

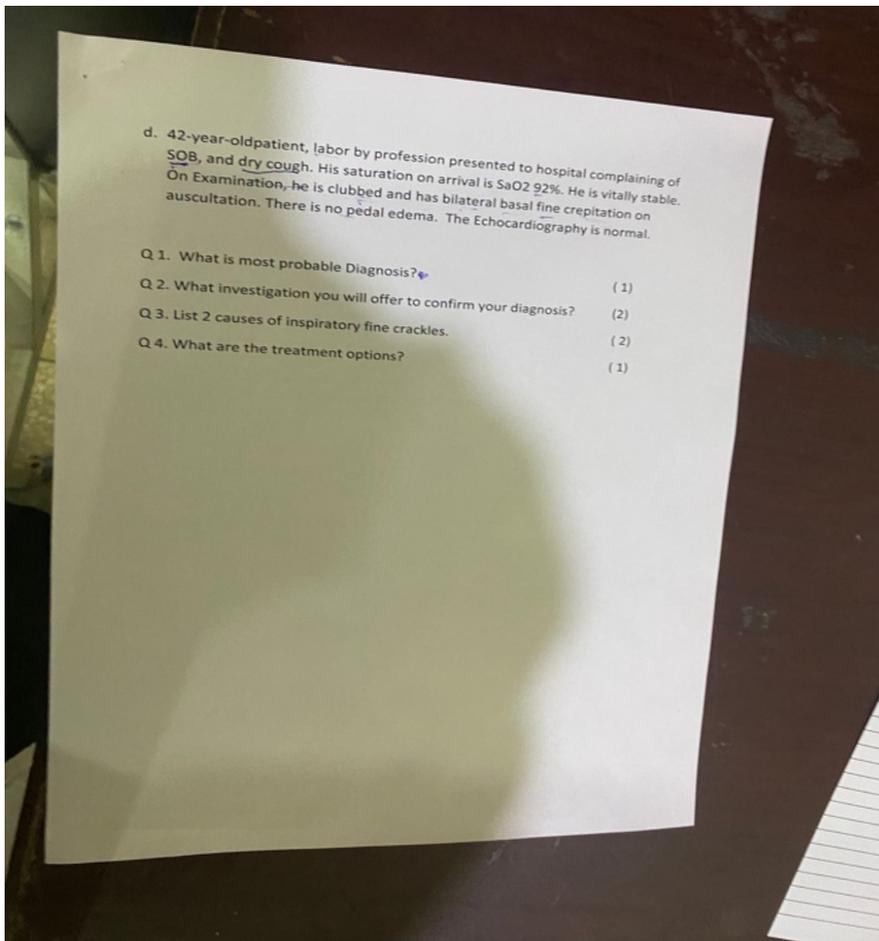
- ✓ Mild cases: Observation
- ✓ Severe cases: Corticosteroids (Prednisolone)
- ✓ Immunosuppressants: Methotrexate (if refractory)

XRAY FINDINGS OF SARCOIDOSIS

- ✓ Stage 1: Bilateral hilar lymphadenopathy (BHL)
- ✓ Stage 2: BHL + pulmonary infiltrates (interstitial opacities)
- ✓ Stage 3: Pulmonary infiltrates without BHL
- ✓ Stage 4: Fibrosis, volume loss, honeycombing

STATION 11





Answers:

✓ Q1: Most Probable Diagnosis

Interstitial Lung Disease (ILD)

✓ Q2: Investigations to Confirm Diagnosis

HRCT Chest

Pulmonary Function Test (PFT)

✓ Q3: Causes of Inspiratory Fine Crackles

Pulmonary Fibrosis

Heart Failure

✓ Q4: Treatment Options



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Oxygen Therapy

Antifibrotics (Pirfenidone, Nintedanib)

Steroids (if inflammatory cause)

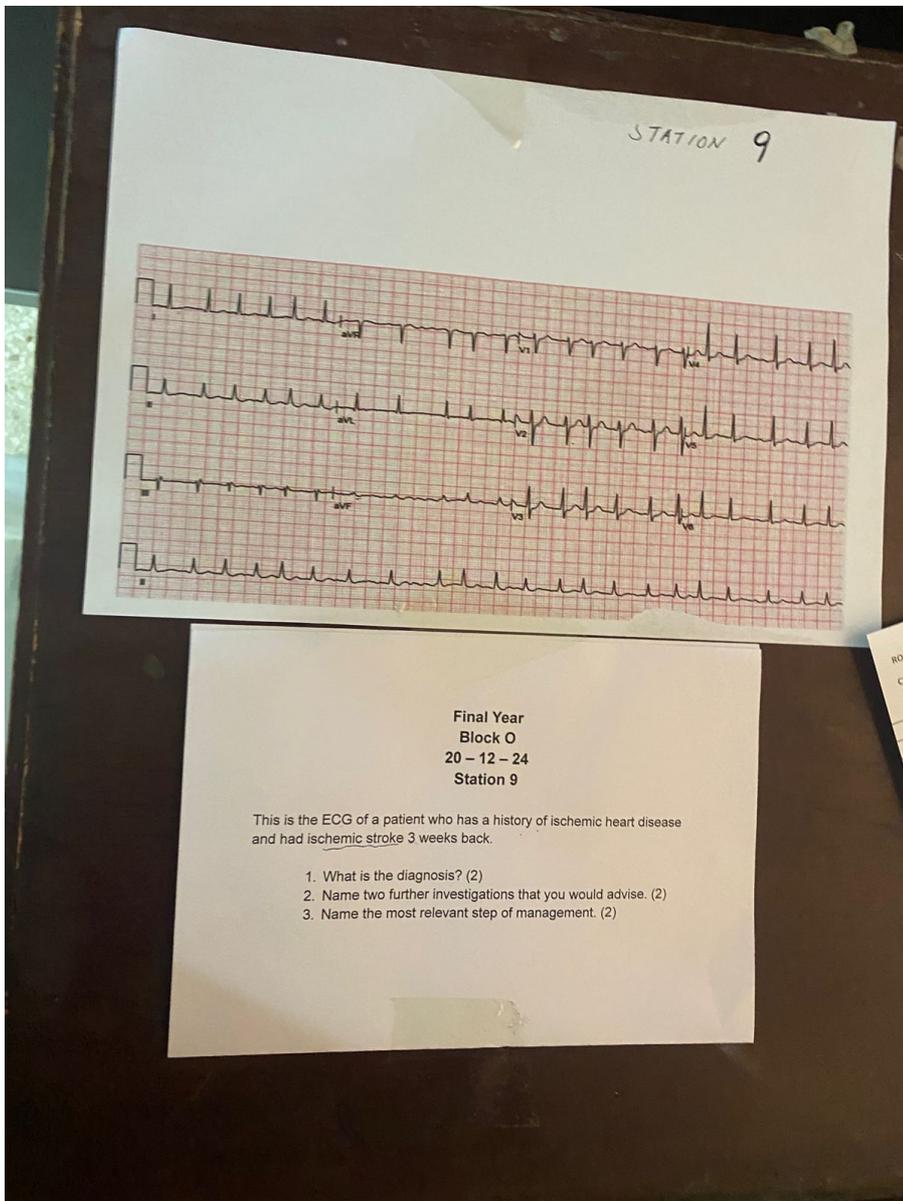
Pulmonary Rehabilitation

	EKG findings
Atrial Flutter (250-350 bpm)	Regular QRS complex Saw tooth seen on inferior leads II, III, aVF
Atrial Fibrillation (>350)	No P waves Irregular QRS complex. irregularly irregular RR interval
MAT (>100)	≥ 3 morphologically distinct P-waves Irregular P-P interval, isoelectric baseline b/w P-waves
SVT	Narrow complex tachycardia.
WPW syndrome	Shortened PR interval, Delta wave, Widened QRS complex.
Ventricular fib	No P waves / No QRS complexes Erratic wide complex
VT	Regular wide QRS complex tachycardia

STATION 12



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Answers:

✓ Q1: Diagnosis

Atrial Fibrillation (AF)

✓ Q2: Further Investigations

Echocardiography (assess cardiac function, clots)

Holter Monitoring (detect paroxysmal AF)

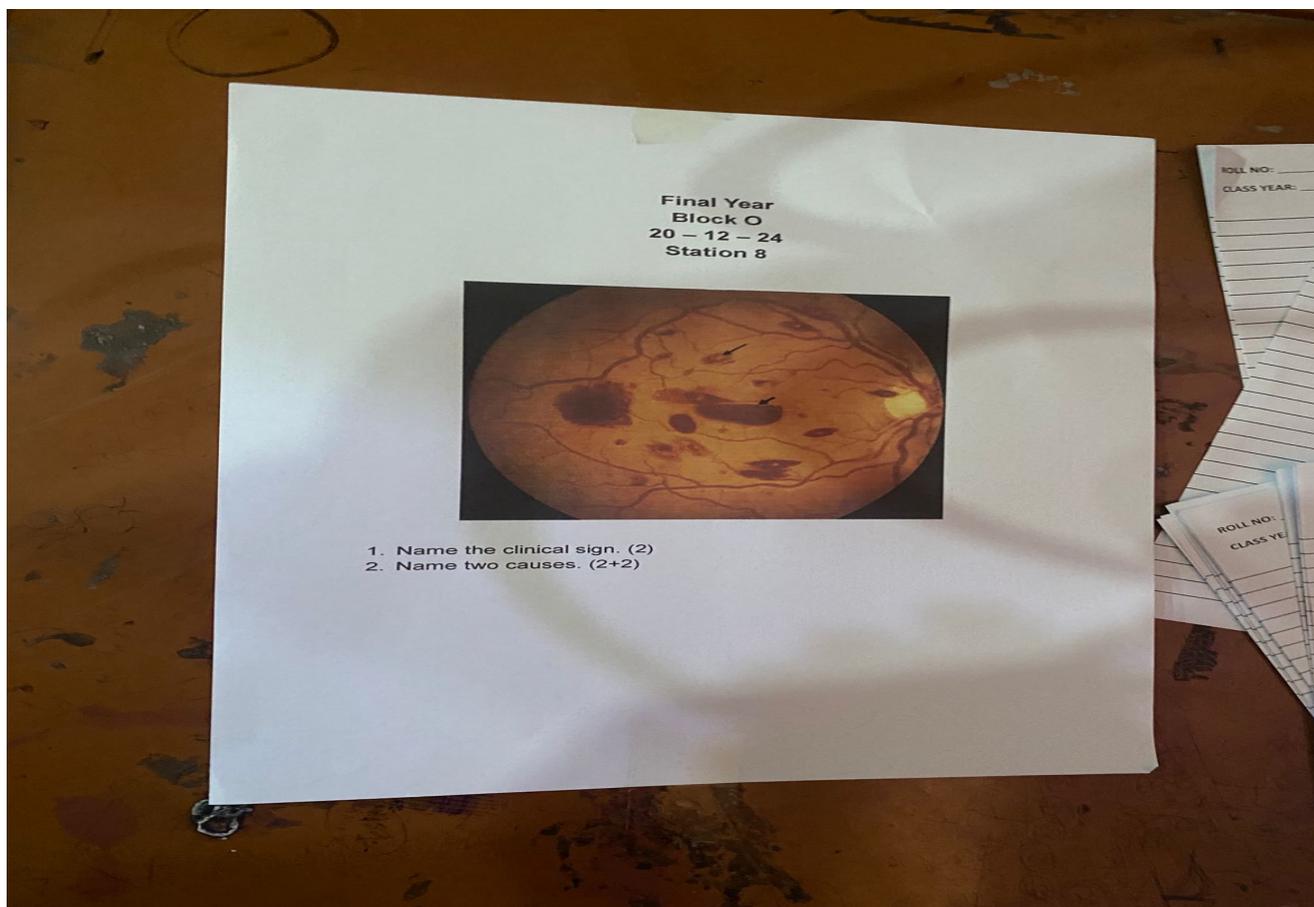
✓ Q3: Most Relevant Step of Management



Anticoagulation (Warfarin/DOACs)

Rate Control (Beta-blockers, CCBs, Digoxin)

STATION 13



Answers:

✓ Q1: Clinical Sign

Retinal Hemorrhages=roth spots



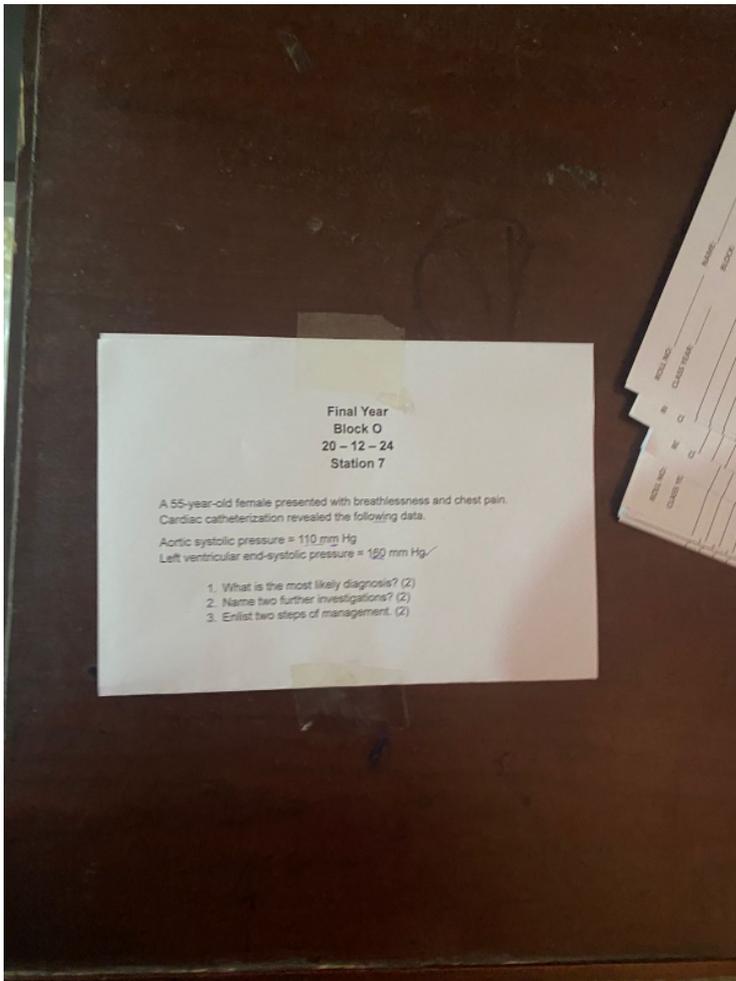
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✓ Q2: Causes
Infective endocarditis

Diabetic Retinopathy

Hypertensive Retinopathy

STATION 14



Answers:

✓ Q1: Most Likely Diagnosis

Aortic Stenosis

✓ Q2: Further Investigations



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Echocardiography (Assess valve morphology & gradient)

ECG (Signs of left ventricular hypertrophy)

✓ Q3: Steps of Management

Symptomatic relief (Beta-blockers, Diuretics if needed)

Definitive treatment (Aortic Valve Replacement - Surgical/TAVI)

STATION 15

INTERACTIVE STATION ABOUT PULMONARY EMBOLISM THERE WAS A SCENARIO IN WHICH IT WAS MENTIONED THE LADY HAD ANTI PHOPHOLIPID SYNDROME SUDDENLY DEVELOPED SOB AND HEMOPTYSIS

Pulmonary Embolism -

- ✓ Etiology: DVT, immobilization, surgery, malignancy
- ✓ Symptoms: SOB, chest pain, hemoptysis, syncope
- ✓ Signs: Tachycardia, tachypnea, hypotension, cyanosis
- ✓ Diagnosis: D-dimer, CTPA (gold standard), ECG (S1Q3T3), ABG
- ✓ Treatment: Anticoagulation (Heparin, DOACs), thrombolysis (if massive PE), IVC filter (if anticoagulation contraindicated)

Well's Criteria for Pulmonary Embolism

- ✓ Clinical Signs of DVT → 3 points
- ✓ PE Most Likely Diagnosis → 3 points
- ✓ Heart Rate >100 bpm → 1.5 points
- ✓ Immobilization ≥3 days or Surgery in Past 4 Weeks → 1.5 points
- ✓ Previous DVT/PE → 1.5 points
- ✓ Hemoptysis → 1 point
- ✓ Malignancy (Active or Recent) → 1 point

Interpretation:

High Risk (≥4points): High probability

Moderate Risk (2-4points): Intermediate probability

Low Risk (<2 points): Low probability

Causes of Pulmonary Embolism



✓ Thrombotic (Most Common):

Deep vein thrombosis (DVT)

Post-surgical immobility

Pregnancy & postpartum state

✓ Non-Thrombotic (Rare):

Fat embolism (long bone fractures)

Air embolism (IV lines, trauma)

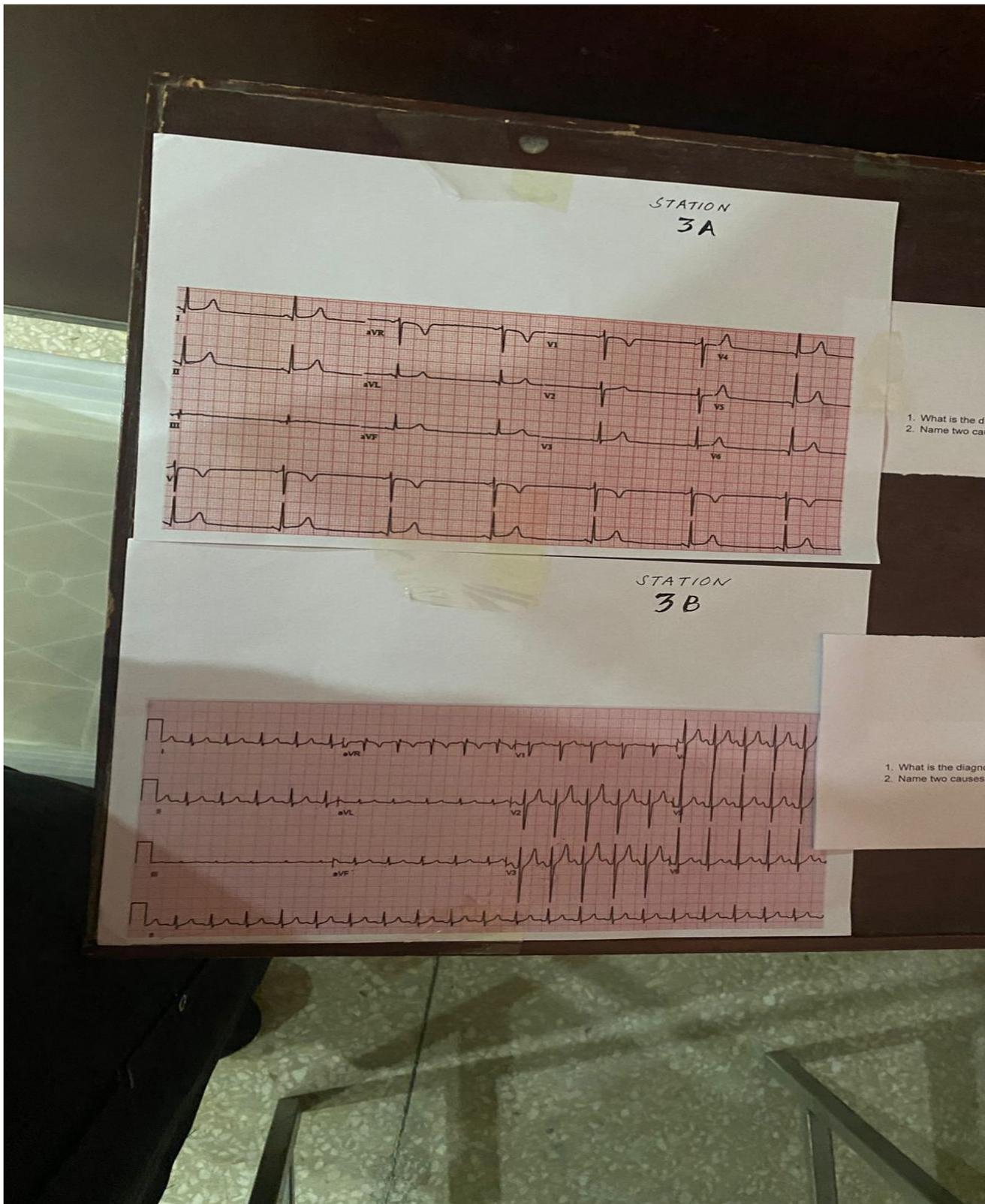
Amniotic fluid embolism (labor, delivery)

Tumor embolism (malignancy)

Septic embolism (infective endocarditis)

STATION 16



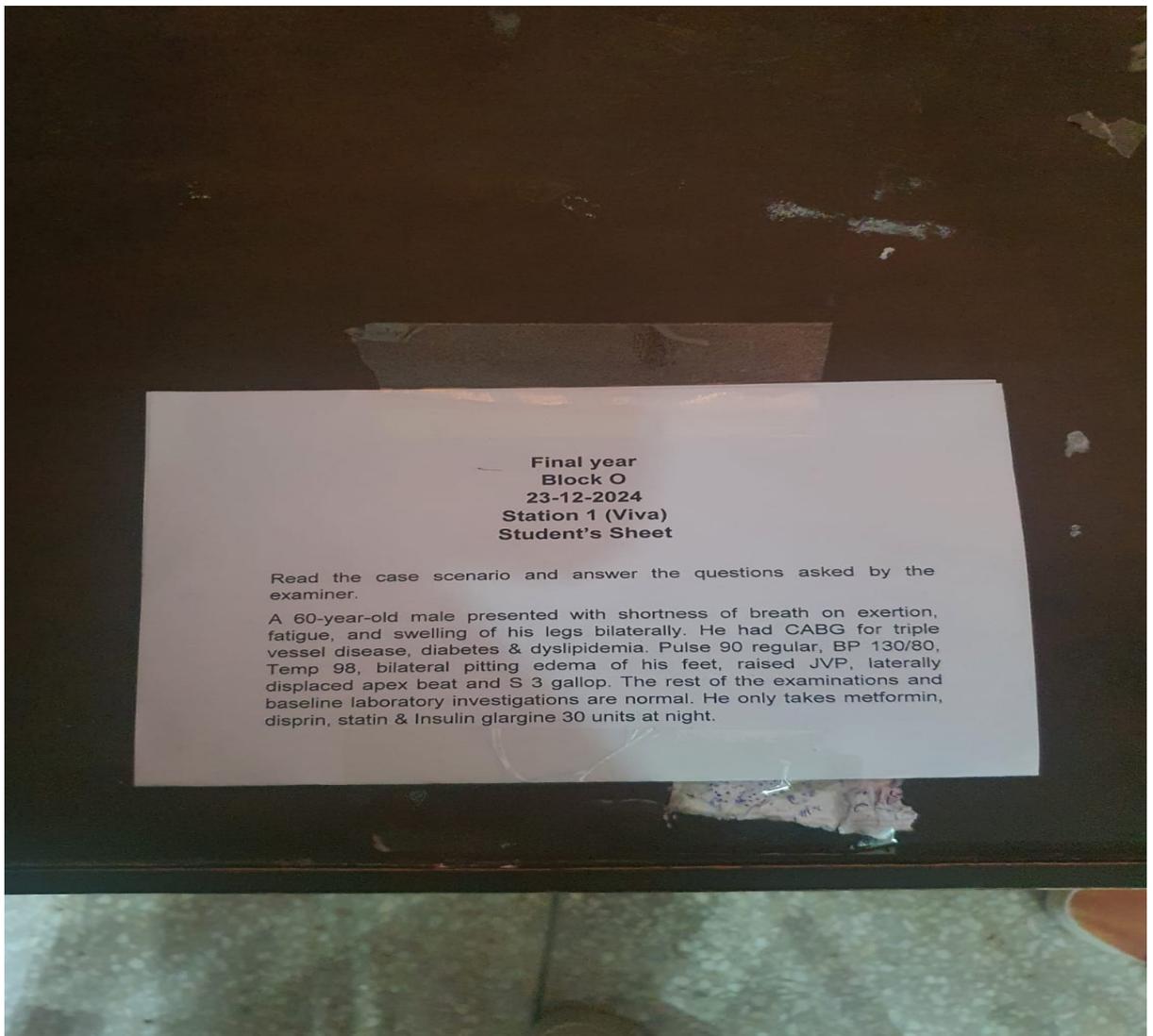


A=SINUS BRADYCARDIA
B=SINUS TACHYCARDIA



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STATION 1



1) Diagnosis:



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Congestive Heart Failure (CHF)

Likely Heart Failure with Reduced Ejection Fraction (HFrEF) (history of CABG, displaced apex beat, S3 gallop, pitting edema, raised JVP)

2) Investigations:

Blood Tests: BNP/NT-proBNP, cardiac enzymes, renal function, electrolytes, HbA1c

Imaging: Echocardiogram (EF assessment), Chest X-ray (pulmonary congestion, cardiomegaly)

ECG: To check for ischemia, arrhythmias

Stress Test or Coronary Angiography: If ischemia suspected

Lipid Profile & HbA1c: Risk factor assessment

3) Advice & Management:

Lifestyle Modifications: Low sodium diet, fluid restriction, weight monitoring

Medications:

Diuretics (Furosemide) – for fluid overload

Beta-blockers (Carvedilol, Metoprolol) – for heart failure

ACE inhibitors/ARBs (Lisinopril, Losartan) – for afterload reduction

Mineralocorticoid receptor antagonists (Spironolactone)

SGLT2 inhibitors (Dapagliflozin, Empagliflozin) – for HF and diabetes



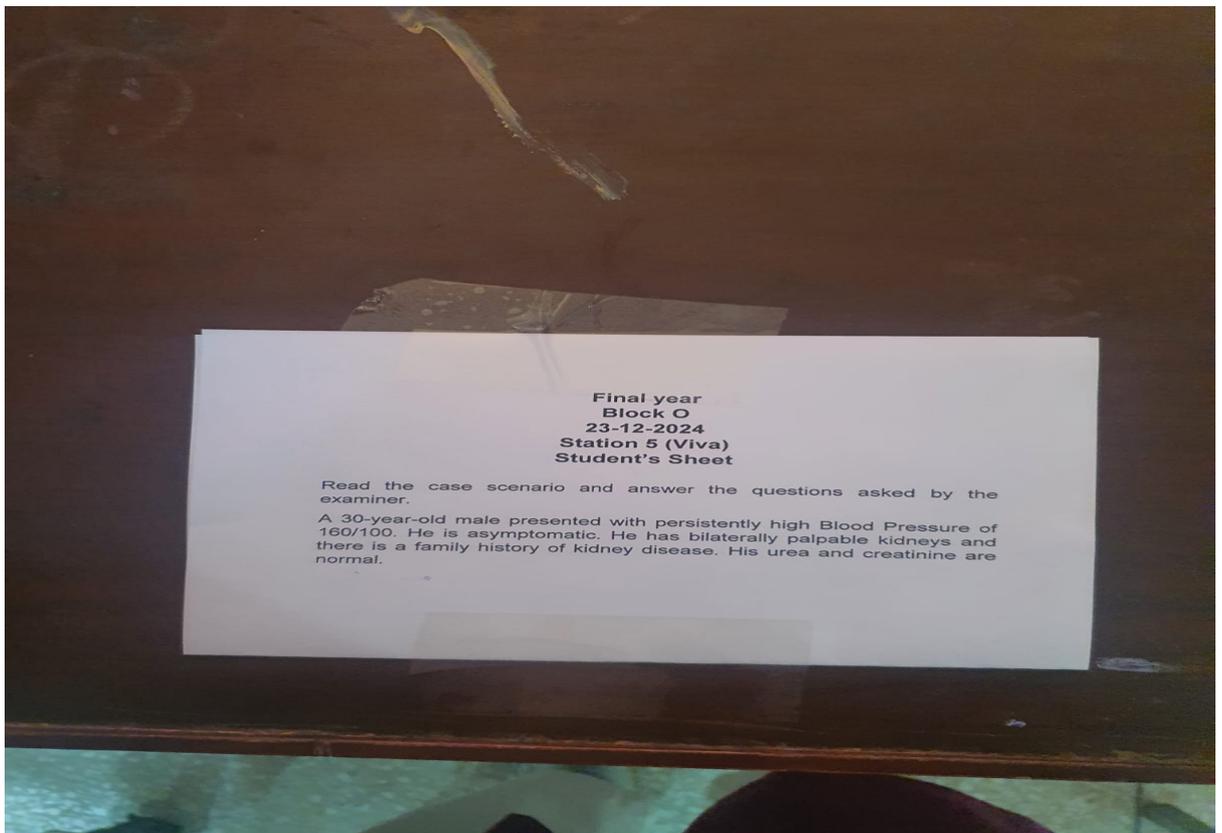
Follow-up: Regular cardiology visits, monitoring for decompensation

Advanced Therapies: ICD or CRT in severe cases

STATION 2

1) DIAGNOSIS

2) TREATMENT AND DIETARY ADVICE TO PATIENT



1) Diagnosis:

Autosomal Dominant Polycystic Kidney Disease (ADPKD)

Suggested by:

Hypertension in a young patient

Bilateral palpable kidneys



Family history of kidney disease

2) Treatment and Dietary Advice:

Medical Treatment:

Blood Pressure Control:

ACE inhibitors (e.g., Enalapril, Ramipril) or ARBs (Losartan) – preferred for kidney protection

Regular BP monitoring

Tolvaptan: If indicated, to slow cyst progression

Pain Management: Avoid NSAIDs, use acetaminophen if needed

Management of Complications:

Treat urinary tract infections promptly

Monitor for hematuria and kidney function decline

Dietary Advice:

Increase Water Intake: Helps reduce vasopressin levels and slow cyst growth

Low-Sodium Diet: Helps control blood pressure

Reduce Protein Intake: To decrease kidney workload

Avoid Caffeine: May promote cyst growth

Maintain a Healthy Weight & Exercise Regularly



Follow-Up:

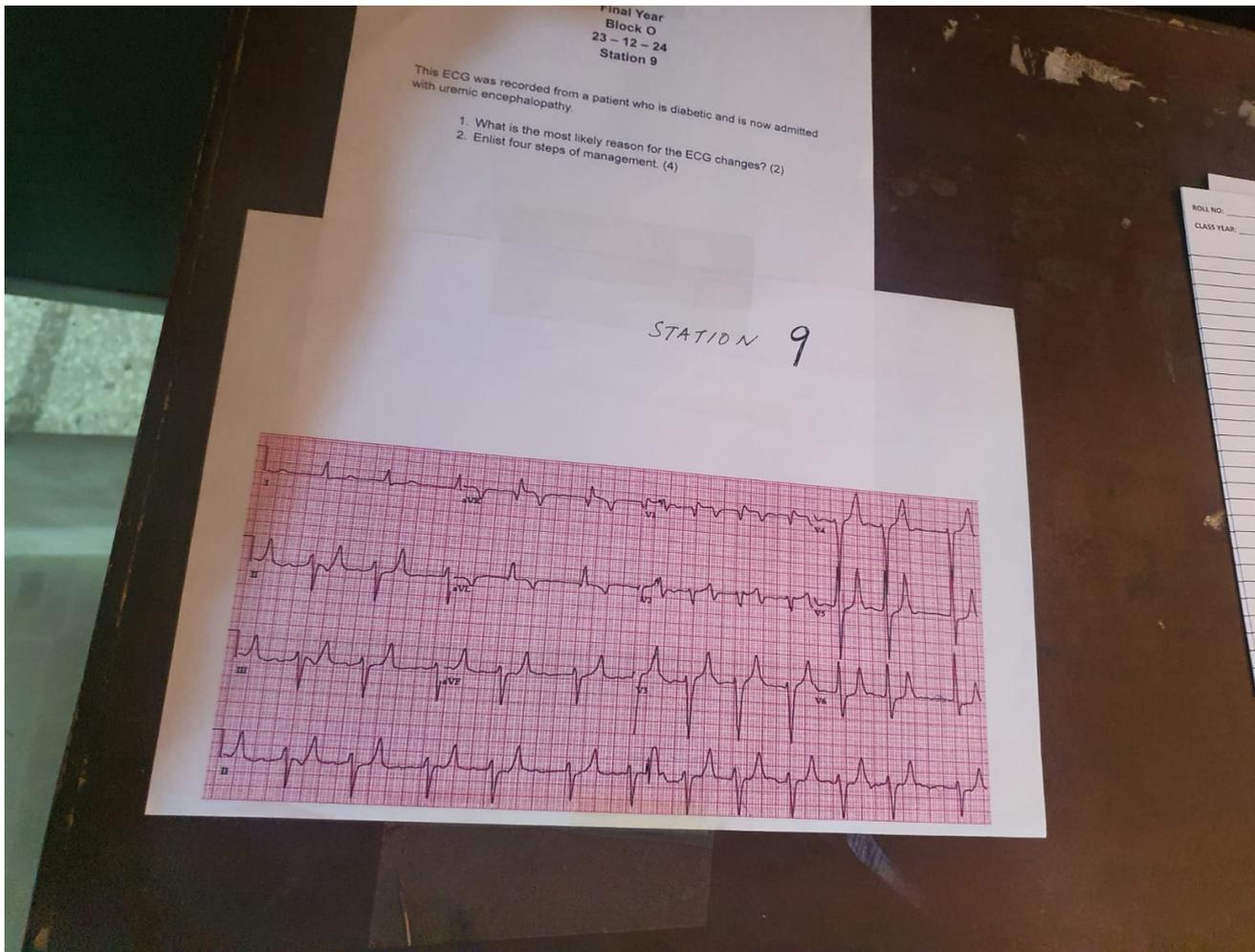
Regular kidney function tests (creatinine, eGFR)

Routine abdominal ultrasound/MRI for cyst monitoring

Genetic counseling for family planning

STATION 3





Station 9 -

1) Most Likely Reason for ECG Changes:

Hyperkalemia (severe K^+ elevation)

Features:

Peaked T waves

Wide QRS

No P waves

Sine wave (severe)



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2) Four Steps of Management:

Stabilize Heart: IV Calcium Gluconate

Shift K^+ Intracellularly: IV Insulin + Dextrose, Salbutamol, Bicarbonate (if acidotic)

Eliminate K^+ : Diuretics, Kayexalate, Dialysis (if severe)

Treat Cause: Stop K^+ -retaining meds, manage renal failure

STATION 4



Final Year
Block O
23 – 12 – 24
Station 4



This patient with a history of ischemic heart disease has presented with sudden onset of shortness of breath. His BP is 130/70, pulse is 120 bpm and oxygen saturation is 80% on room air.

1. What is the radiological diagnosis? (2)
2. Enlist four steps of immediate management. (4)

1) Radiological Diagnosis:

Pulmonary Edema (likely cardiogenic)



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CXR features:

Bilateral alveolar infiltrates

Batwing appearance

Cardiomegaly

Kerley B lines

Pleural effusion

2) Four Steps of Immediate Management:

Oxygen therapy (high-flow O₂ to maintain SpO₂ >90%)

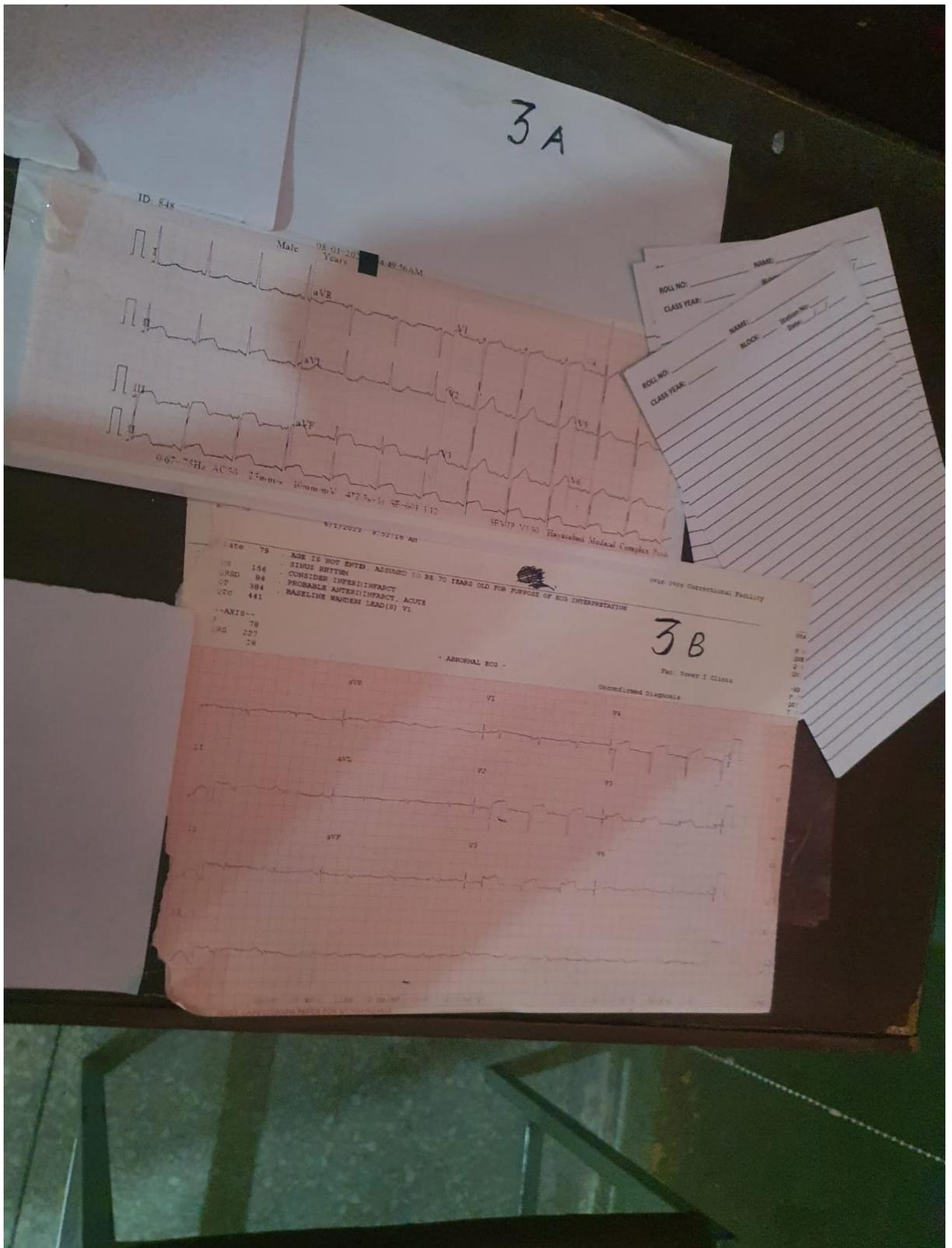
Diuretics (IV Furosemide to reduce fluid overload)

Vasodilators (Nitroglycerin if BP stable)

Morphine (for anxiety & venodilation, use cautiously)

STATION 5



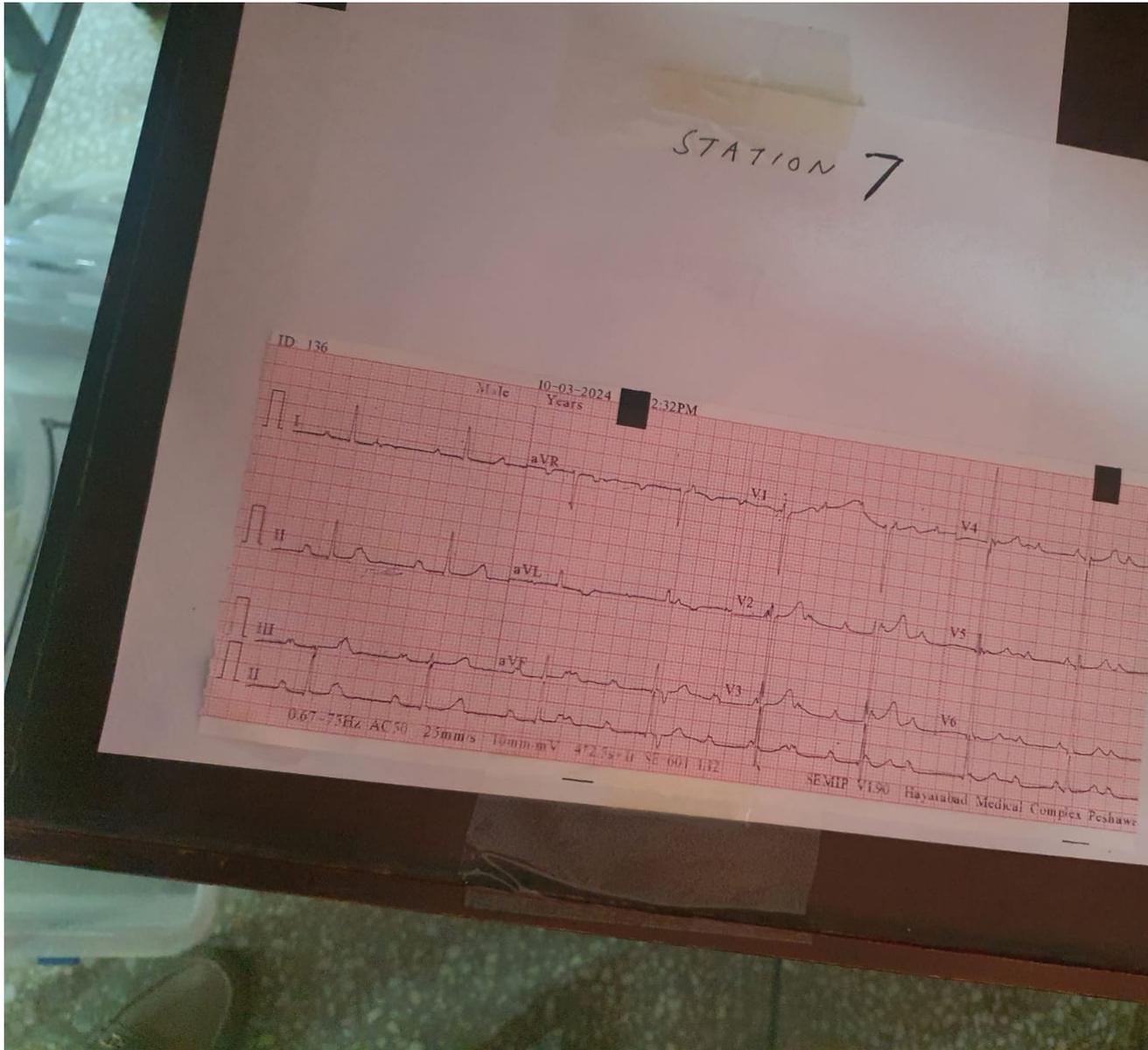


3A=ST ELEVATION IN 2,3 AND AVF
3B=ST ELEVATION V1,V2,V3



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STATION 6



ANSWER=2ND DEGREE HEART BLOCK-MOST PROBABLY

STATION 7

A 23 year old girl with chronic productive cough her sister also had the same disease and died

1. Defect?



Cystic Fibrosis (CF) (most likely, given chronic cough & sibling history)

Primary Ciliary Dyskinesia (PCD) (Kartagener's syndrome if situs inversus)

Alpha-1 Antitrypsin Deficiency (less common)

2. First-Line Investigation:

Sweat chloride test (Gold standard for CF)

Genetic testing for CFTR mutations

Nasal Nitric Oxide Test (for PCD)

Sputum Culture (to check for Pseudomonas, Staph aureus)

3. Management:

Airway Clearance Therapy (Chest physiotherapy, bronchodilators)

Antibiotics (For recurrent infections, e.g., Pseudomonas)

Pancreatic Enzyme Replacement (If pancreatic insufficiency)

Nutritional Support (High-calorie diet, vitamins A, D, E, K)

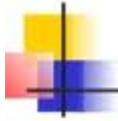
Lung Transplant (In end-stage disease)

STATION 8

EXAMINATION OF JVP

HOW TO DIFFERENTIATE JVP AND CAROTID PULSE ?





JVP vs. Carotid pulse

- | | |
|------------------------------------|--------------------------------------|
| ▪ Better seen | ▪ Better felt |
| ▪ 2 upstrokes/beat | ▪ 1 upstroke/beat |
| ▪ Upper level | ▪ No upper level |
| ▪ Less forceful | ▪ More forceful |
| ▪ Easily obliterated | ▪ Not obliterated |
| ▪ Changes with posture/respiration | ▪ No change with posture/respiration |
| ▪ HJ reflux +ve | ▪ No change |



Feature	JVP	Carotid Pulse
Palpability	Non-palpable	Palpable
Occlusion	Collapsible with pressure	Not collapsible
Waveform	Biphasic (double peak)	Monophasic (single peak)
Effect of Respiration	Decreases on inspiration	No effect
Effect of Pressure	Changes with abdominal pressure	No change



Station 8:

1) Examination of JVP:

Patient Position: 45° reclining

Identify JVP: Look at the right internal jugular vein

Measure Height: Distance from sternal angle (Normal $\leq 3-4$ cm)

Waveform Analysis: Look for "a", "c", and "v" waves

3) Conditions Causing Raised JVP:

Cardiac Causes:

Right heart failure

Constrictive pericarditis

Cardiac tamponade

Tricuspid stenosis or regurgitation

Pulmonary Causes:

Pulmonary hypertension

Massive pulmonary embolism

Tension pneumothorax

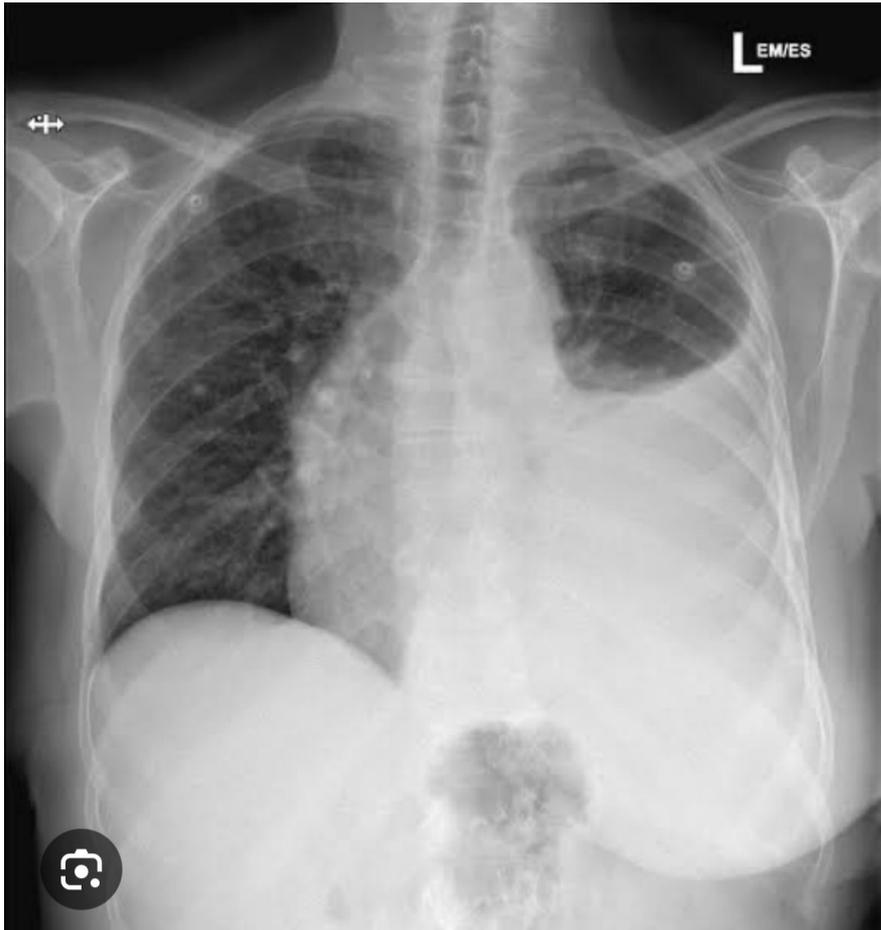
Other Causes:

Superior vena cava obstruction

Fluid overload (e.g., renal failure)



STATION



STATION 12

50 YEAR OLD MAN HAVING PRODUCTIVE COUGH AND BILATERAL WHEEZE SMOKER FROM 15 YEARS SATURATION IS 93 BP AND PULSE NORMAL ,BY BRONCHODILATOR FEV1 IS IMPROVEMENT IS LESS THAN 15 %

1) Diagnosis

Chronic Obstructive Pulmonary Disease (COPD)

History of smoking for 15 years



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Chronic productive cough and bilateral wheezing

FEV1 improvement <15% after bronchodilator (suggests irreversible airflow limitation)

2) Differentiation Between Asthma and COPD

Reversibility:

Asthma: FEV1 improvement >12% and 200 mL after bronchodilator

COPD: FEV1 improvement <12-15% (irreversible)

Symptoms:

Asthma: Episodic, triggered by allergens, exercise, infections

COPD: Chronic, progressive, persistent symptoms

Age of Onset:

Asthma: Childhood or early adulthood

COPD: Usually after 40 years

Smoking History:

Asthma: Less commonly related to smoking

COPD: Strongly associated with smoking

3) Indications for Invasive Mechanical Ventilation in COPD



Severe respiratory acidosis (pH <7.25, PaCO₂ >60 mmHg)

Severe hypoxemia (PaO₂ <50 mmHg) despite oxygen therapy

Respiratory muscle fatigue or impending failure

Altered mental status due to CO₂ retention

Hemodynamic instability (shock, arrhythmias)

4) Management of COPD

Smoking cessation (most effective intervention)

Bronchodilators

Short-acting: SABA (Salbutamol), SAMA (Ipratropium)

Long-acting: LABA (Formoterol, Salmeterol), LAMA (Tiotropium)

Inhaled corticosteroids (if frequent exacerbations)

Oxygen therapy (if SpO₂ <88% or PaO₂ <55 mmHg)

Pulmonary rehabilitation

Management of exacerbations:

Systemic steroids (Prednisolone 30-40 mg/day for 5 days)

Antibiotics if infection suspected (e.g., Azithromycin, Amoxicillin-Clavulanate)

Non-Invasive Ventilation (NIV) in acute respiratory failure



STATION 16

GRANDPARENTS HAD CHRONIC COUGH AND BABY NOW HAVE CONSOLIDATION (TB SCENERIO)

1) Diagnosis

Primary TB infection in the baby (due to close contact with infected grandparents)

Pulmonary TB in grandparents (chronic cough, possible TB consolidation on imaging)

2) Investigations

For the Baby:

Tuberculin Skin Test (TST) / Mantoux Test

Interferon-Gamma Release Assay (IGRA)

Chest X-ray (look for consolidation, hilar lymphadenopathy)

Sputum/Gastric Aspirate for AFB (Acid-Fast Bacilli) Staining & Culture

GeneXpert MTB/RIF (for TB detection and Rifampicin resistance)

For the Grandparents:

Sputum AFB smear and culture

GeneXpert MTB/RIF



Chest X-ray or CT scan (if needed to confirm pulmonary TB)

Drug Susceptibility Testing (DST) if resistant TB suspected

3) Vaccination

BCG Vaccine (Bacillus Calmette-Guérin)

Given at birth or early infancy

Provides partial protection against severe TB forms (miliary TB, TB meningitis)

Not effective in preventing latent TB infection or reactivation

If exposure to TB is confirmed and the baby is not vaccinated, BCG should be considered after ruling out active TB

INTERPERATATION OF ECG



INTERPRETATION:-

1 → Are p waves present?
 Sinus P waves (normal)
 Upright in leads II, III, F

2 → Regular / Irregular
 Distance b/w QRS complexes (R-R intervals)

Step 1 & 2:-

	P WAVES PRE	NO P WAVES	REGULAR	IRREGULAR	CONDITIONS
1:	✓ (Sinus Rhythm)	-	✓	-	Rare: Atrial tachycardia Atrial rhythm
2:	-	✓	-	✓	Atrial fibrillation (irregularly irregular) Atrial flutter
3:	✓	-	-	✓	Premature Atrial Contractio sinus rhythm with PACs Multifocal atrial tachycardia SINUS with AV block
4:	-	✓	✓	-	Hidden P waves: retrograde supraventricular tachycardia Ventricular tachycardia



Atrial Flutter
↓
Saw tooth

Step 3 → Wide/Narrow QRS.

• **Narrow QRS** (<120ms; 3 small boxes)

→ His Purkinje system works

→ No bundle blocks present

• **Wide QRS**

→ Most likely a bundle branch block

→ Ventricular rhythm (i.e. tachycardia)

Step 4 → check the intervals

• **PR** (normal <210ms; ~5 small boxes, ~1 big box)

→ Prolonged in AV block

→ lengthens with vagal tone, drugs

→ shortens with sympathetic tone

• **QT** (normal < 1/2 R-R interval)

→ Prolonged with ↓ Ca (tetany, numbness, spasms)

→ Prolonged with antiarrhythmic drugs

→ Shortened with ↑ Ca (confusion, constipation)

Step 5 → ST segments

• **T wave abnormalities**

Inverted: ischemia/hypokalemia

Peaked: Early ischemia, hyperkalemia

Flat/Uwaves: Hypokalemia

• **ST Depression**

• Subendocardial ischemia
(MI, ischemia)

ST Elevation

• Transmural ischemia
MI, pericarditis & LV
aneurysm

