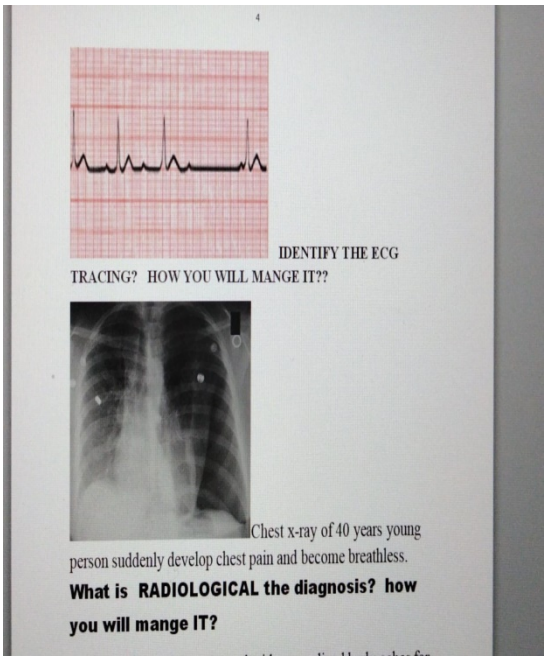


ECG Findings & Management

ECG: S1Q3T3 pattern → Pulmonary Embolism (PE)

Management:

Oxygen

Anticoagulation (heparin, LMWH, DOACs)

Thrombolysis (if unstable)

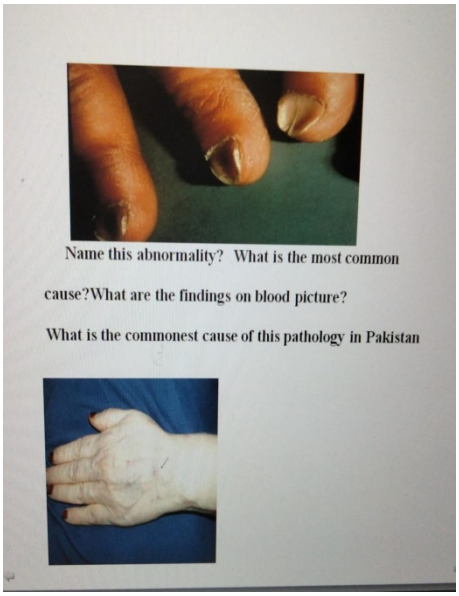
Supportive care (fluids, vasopressors if shock)

CXR Findings & Management

CXR: Prominent pulmonary artery or absent lung markings → PE or Pneumothorax

Management:

PE: Same as above Pneumothorax: Needle decompression (if tension) → Chest tube



Abnormality: Clubbing of fingers

Most Common Cause: Chronic hypoxia (due to lung, heart, or gastrointestinal diseases)

Blood Picture Findings:

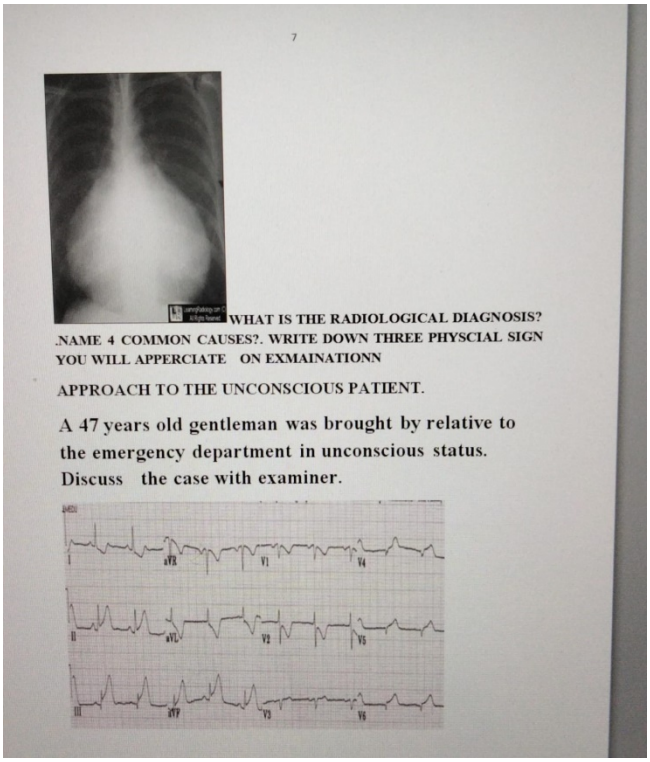
Secondary polycythemia (if due to chronic hypoxia)

Microcytic hypochromic anemia (if due to iron deficiency from GI causes)

Commonest Cause in Pakistan:

Pulmonary tuberculosis (TB)

Other causes: Chronic lung diseases (bronchiectasis, interstitial lung disease), congenital heart disease (cyanotic), liver disease

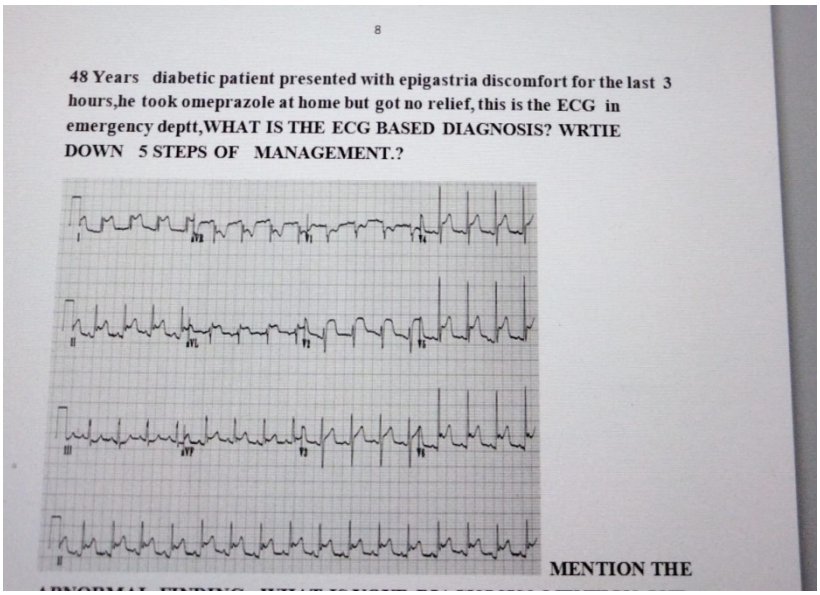


Radiological Dx: Cardiomegaly

Causes: CHF, Pericardial effusion, Cardiomyopathy, Valvular disease

Physical Signs: Raised JVP, Peripheral edema, Distant heart sounds

Unconscious Pt Approach: ABCDE, Vitals, Glucose check, Neuro exam, Investigations



ECG Diagnosis:

Acute Inferior Wall Myocardial Infarction (IWMI) (ST elevation in II, III, aVF)

Possible Right Ventricular (RV) involvement (check V1, V4R)

Reciprocal changes in I, aVL

5 Steps of Management:

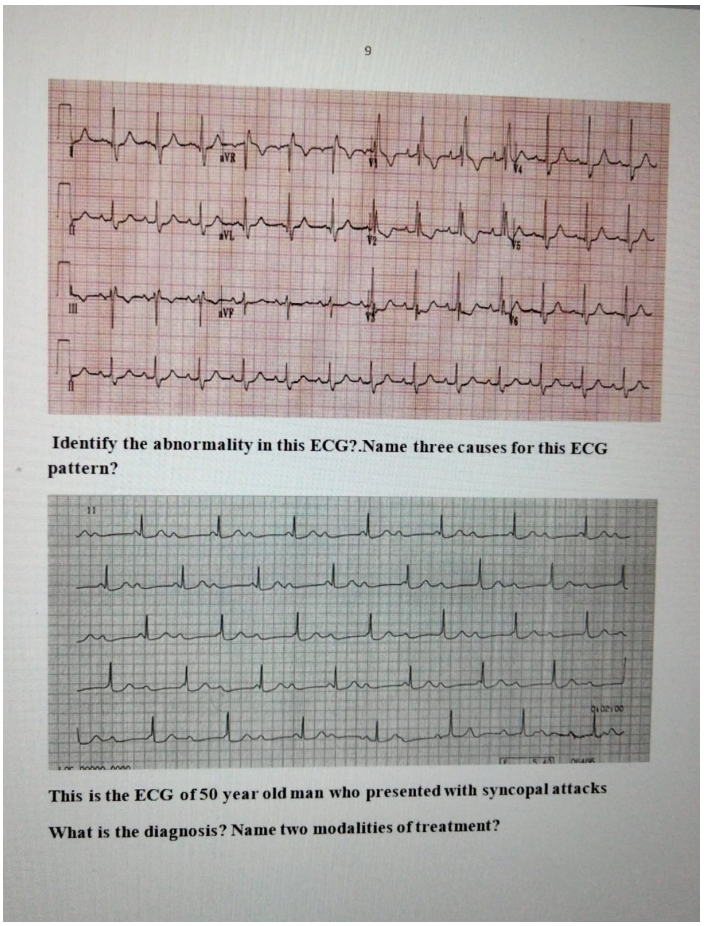
1. MONA (Morphine, Oxygen, Nitrates, Aspirin)

2. Dual Antiplatelet Therapy (DAPT) (Aspirin+Clopidogrel/Ticagrelor)

3. Reperfusion (PCI within 90 min or Fibrinolysis if PCI unavailable)

4. Beta-Blockers, ACEi/ARB, Statins

5. Monitor for complications (arrhythmias, shock, heart failure)



First ECG:

Abnormality: Tall, peaked T waves (Hyperkalemia)

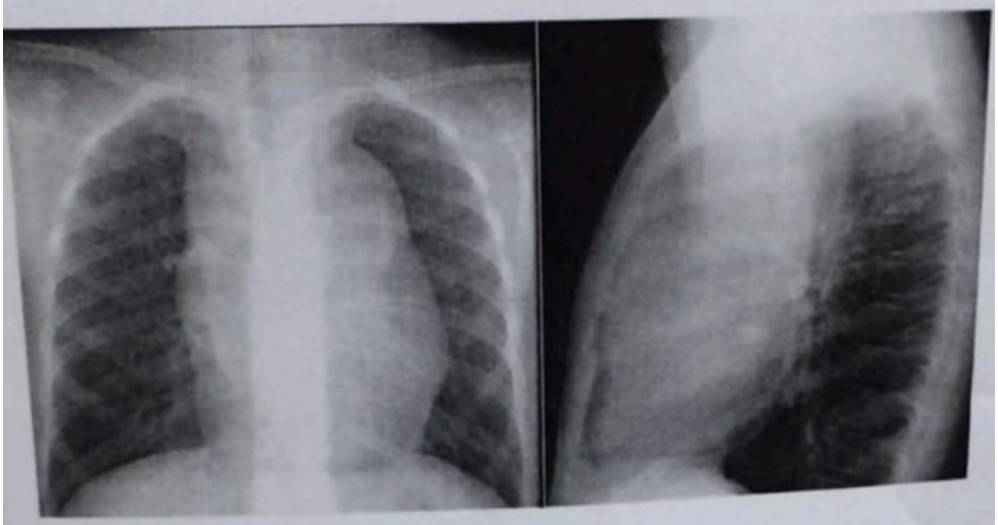
Causes: AKI/CKD, Rhabdomyolysis, Addison's disease

Second ECG:

Diagnosis: Complete Heart Block (3rd-degree AV block)

Treatment: Temporary pacing, Permanent pacemaker

7



This is the chest radiograph of a 7 year old boy.
He presented with fever for the last 1 month with no response to antibiotics.
On examination he has generalized lymphoadenopathy.

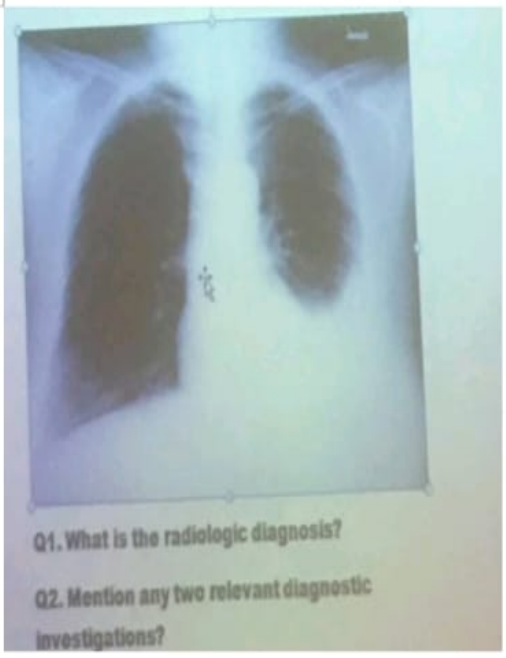
Q 1. What does the chest radiograph show?
Q 2. What is the next investigation needed?
Q 3. What is the most likely diagnosis?

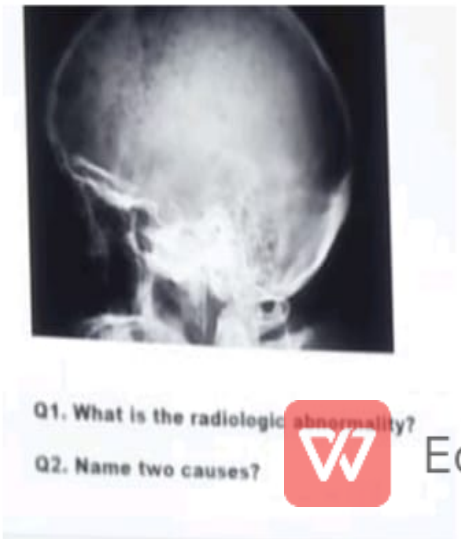
CXR Findings: Hilar & mediastinal lymphadenopathy

Next Investigation: Tuberculin skin test, GeneXpert, Chest CT

Most Likely Diagnosis: Tuberculosis (TB)

40





First Image (CXR):

Diagnosis: Hydropneumothorax

Key Finding: Air-fluid level with collapsed lung

Second Image (Skull X-ray):

Abnormality: Lytic skull lesions

Causes: Multiple myeloma, Langerhans cell histiocytosis

This 3 year old boy became unwell within a few hour

Q1. What is the likely diagnosis?

- Meningococcal Meningititis /Meningococcemia

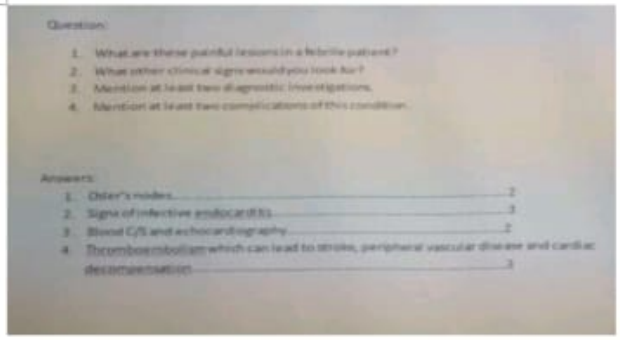
A 10 month old boy weighing 10 kg is brought by the mother because of coughing for the last 2 days. Examination shows his respiratory rate of 55 breaths per minute and chest indrawing. The rest of examination shows no abnormal findings.

Q 1. Classify this child illness according to IMNCI?

Q 2. Write his treatment according to IMNCI?

Q 3. Write instructions for follow up of this child?

1.Severe Pnemonia
2.Give first dose of an appropriate antibiotic.
Treat wheezing if present
Treat the child to prevent hypoglycemia
Refer urgently to hospital.

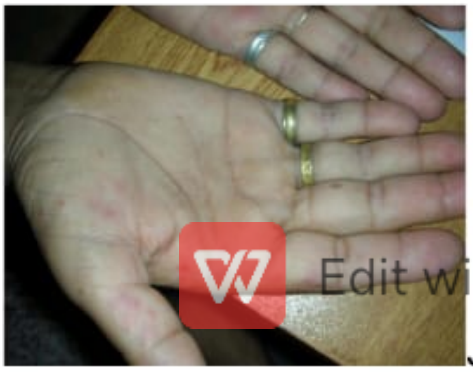


Question:

1. What are these painful lesions in a febrile patient?
2. What other clinical signs would you look for?
3. Mention at least two diagnostic investigations.
4. Mention at least two complications of this condition.

Answers:

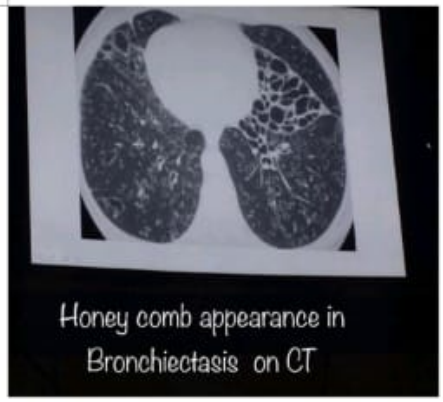
1. Osler's nodes 2
2. Signs of infective endocarditis 3
3. Blood C/S and echocardiography 2
4. Thromboembolism which can lead to stroke, peripheral vascular disease and cardiac decompensation 3

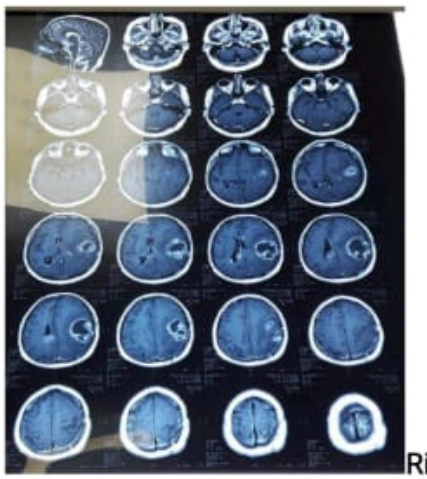


Janeway lesion

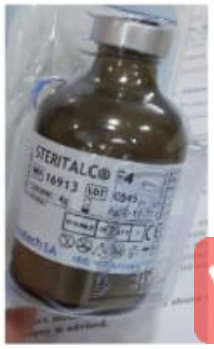
For pluerodehsis

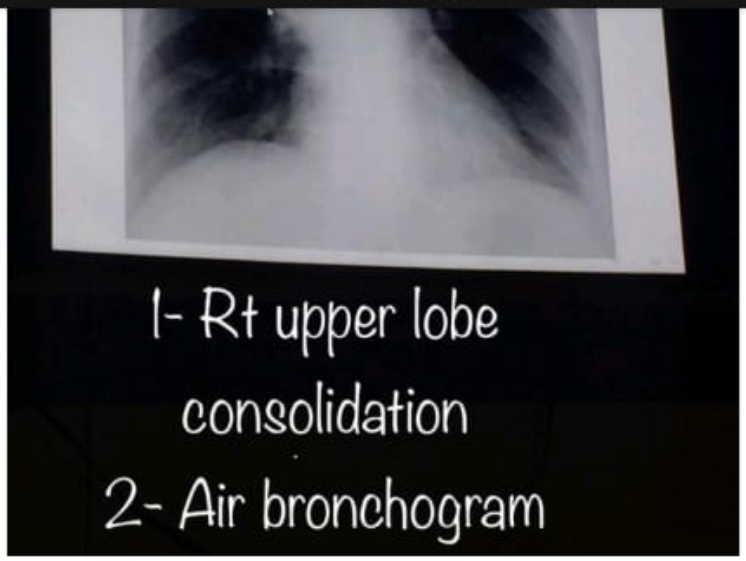
Splinter heamorhage .Infective endocarditis



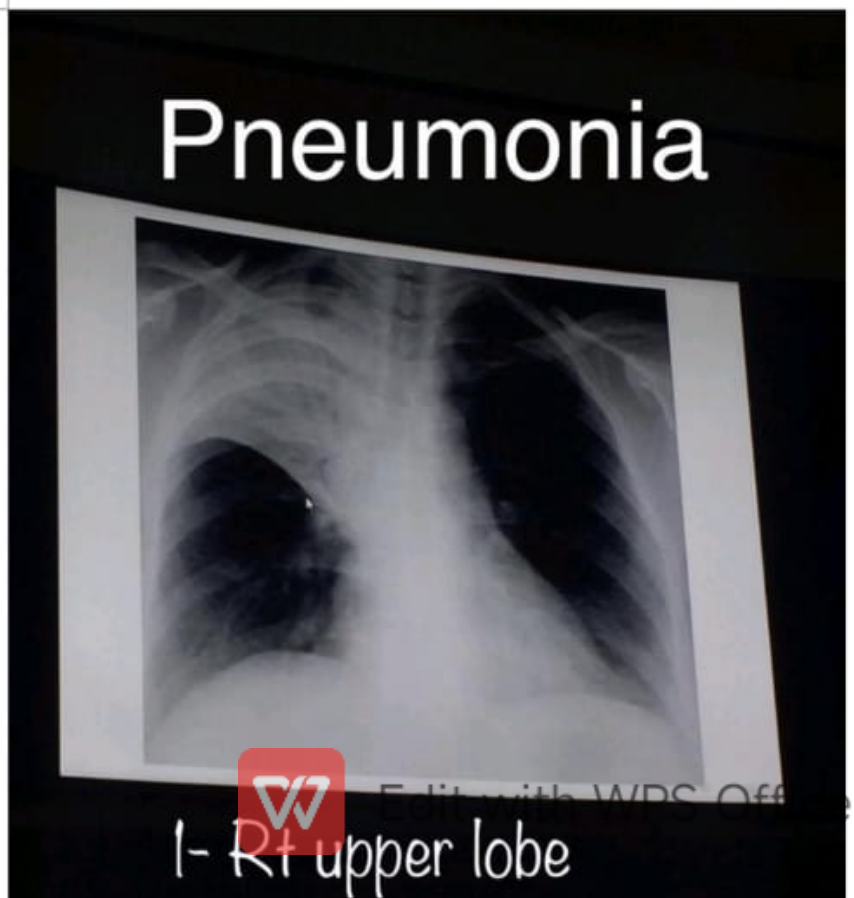


Ring enhancment ...space occupying lesion





BRONCHECTESIS

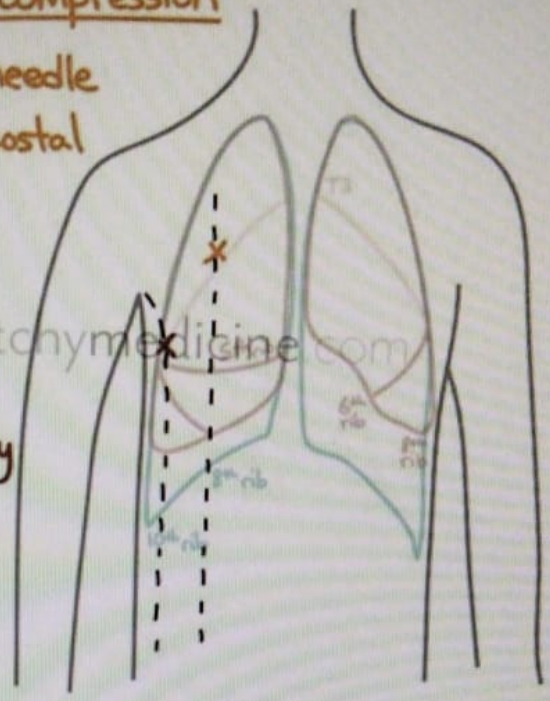

Pneumonia
1- Rt upper lobe

Needle Decompression

14 or 16 gauge needle
2nd or 3rd intercostal
midclavicular

Chest Tube

4th intercostal
anterior axillary
(skin incision
1 ICS below)



For Candidate:

An 18 year old boy who presented with a flank pain underwent an investigation. His X-ray is shown here.

Task:

Carefully examine the given radiograph / photograph and answer the following questions.

1. What investigation has been done? 01
2. What abnormality does it show? 01
3. What is the probable underlying cause? 01
4. If left untreated, what can happen? 01
5. What treatment should be done? 01

KEY:

1. IVU 01
2. Right hydroureter & hydronephrosis 01
3. Ureteric stone 01
4. Loss of renal function on this side 01
5. Ureterolithotomy 01

A 25 years old young man presented with sudden onset chest pain followed by dyspnoea. He used to smoke approximately 10 cigarettes a day but was otherwise asymptomatic. On examination, breath sounds are reduced on right side. Trachea and apex beat were felt at normal position. Percussion note is resonant as compared to the other side

Task:

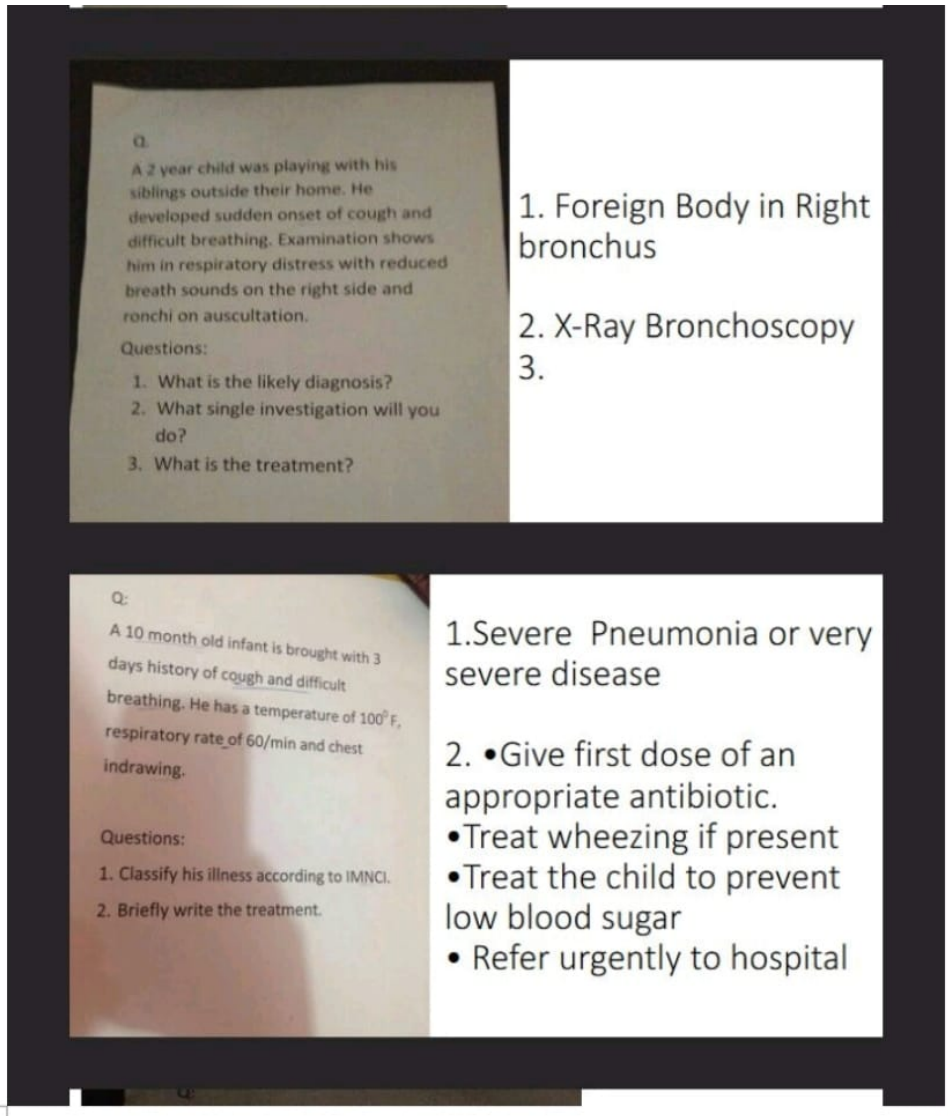
Carefully answer the following questions:

1. What is the most likely diagnosis? Give arguments. 02
2. What would you suspect if his condition becomes critical? 01
3. What single therapeutic step is most important to save his life from this complication? 02

For Examiner:

KEY:

1. Spontaneous pneumothorax. Reduced VF & VR (to be counted 1) and cyanosis, 02
2. Tension pneumothorax 01
3. Chest intubation 02



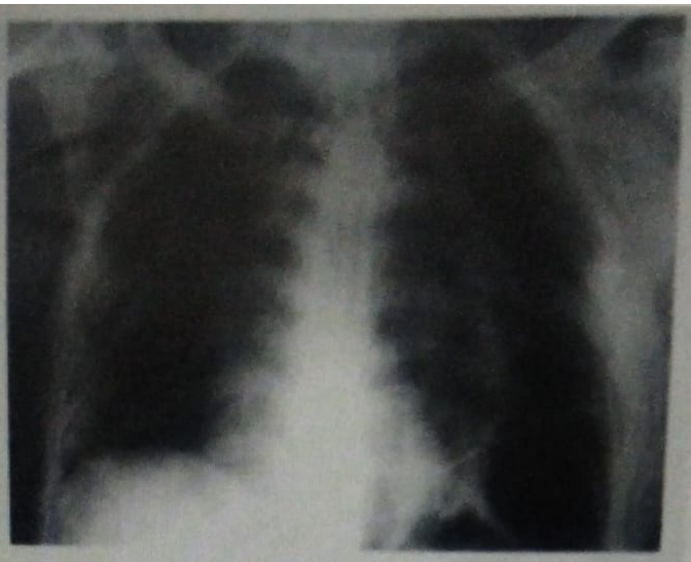


Figure 40

A 35 years old driver was driving corolla at 190km/hour without wearing seat belt; his car collides with a heavy vehicle and his chest strike on the handle of his car. He was brought to the emergency and initial management was done and his chest x ray is shown in figure 40. Read this radiograph carefully and answer the following questions.

1. What are the findings in this radiograph?
2. What do you mean by A, B, C, D, E, of trauma?
3. How will you assess the breathing problems in primary survey?

Answers

1.

- Left sided pneumothorax.
- Flail chest on left side: It is the fracture of three or more adjacent ribs in two places. Examine the radiograph carefully the four ribs are fractured at more than two places
- Left lung is compressed.
- Chest tube is seen on both sides.
- Subcutaneous emphysema

2.

- Airway and cervical spine control.
- Breathing and ventilation.
- Circulation and hemorrhage control.
- Neurological dysfunction (assessment).
- Exposure in the controlled environment.

3.

- I will inspect the chest for surgical emphysema, wounds and evidence of tracheal deviation.
- Condition of neck veins, symmetry of chest, respiratory efforts and respiratory rate.
- Percussion and auscultation. I will also examine the back of the patient.

Q 1. What sign does this x-ray show?

Q2. What is the diagnosis?

Q 2. Write down treatment steps?

duodenoduodenostomy

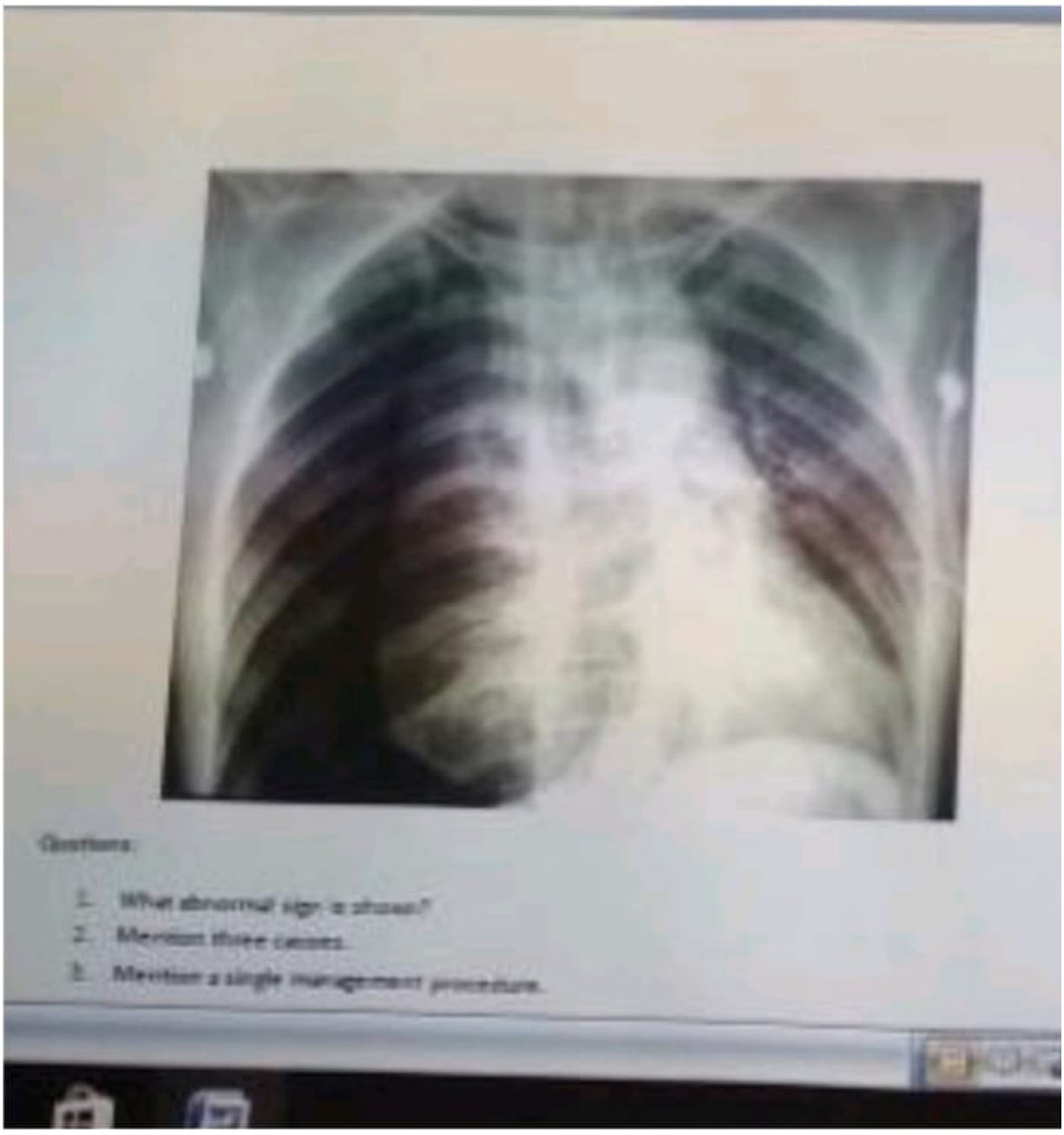
duodenojejunostomy

Mangolion spot.

Natural History:

Clubbing:

Causes:
IBD
Coeliac Disease
Empyema
Interstitial Lung Diease,Ca Lung
Cynotic Heart Disease



Abnormality: Cavitary lesion in upper lobe

Causes: Tuberculosis, Lung abscess, Fungal infection

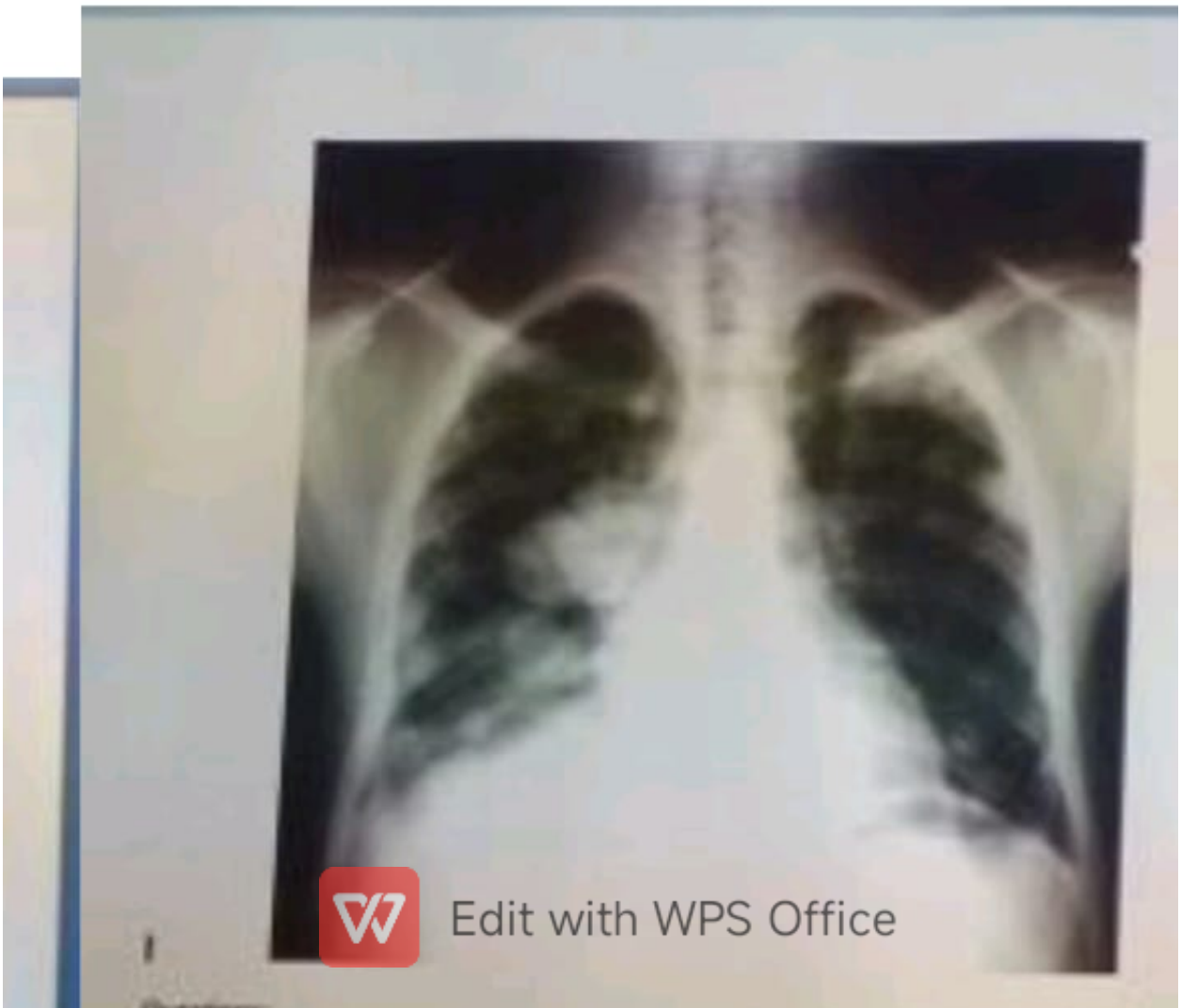
Management: Sputum AFB, Chest CT, Empirical antibiotics/antitubercular therapy

Diagnosis: Raynaud's phenomenon IN THE PICTURE ABOVE NOT SHOWN HERE

Causes: Scleroderma, Lupus, Vasculitis

Management: Avoid cold, CCBs (e.g., nifedipine)

42



Abnormality: Bilateral upper lobe cavitations

Causes: Tuberculosis, Fungal infections, Vasculitis (e.g., GPA)

Symptoms: Fever, Cough, Hemoptysis

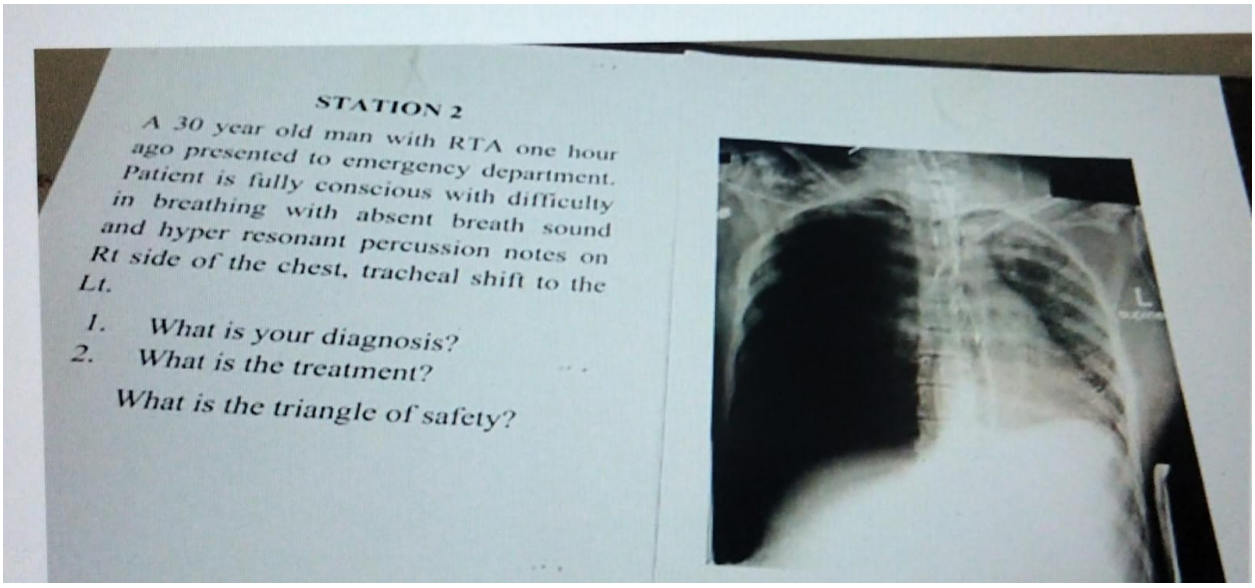
STATION 3

Question 1:	**Give two differential diagnosis for this patient.**	**4**
Question 2:	**Give two investigations for this patient.**	**3**
Question 3:	**Mention two treatment options.**	**3**

Differential Diagnosis: Cellulitis, Deep Vein Thrombosis (DVT)

Investigations: Doppler ultrasound, Complete blood count (CBC)

Treatment Options: IV antibiotics (if cellulitis), Anticoagulation (if DVT)



Diagnosis: Tension pneumothorax

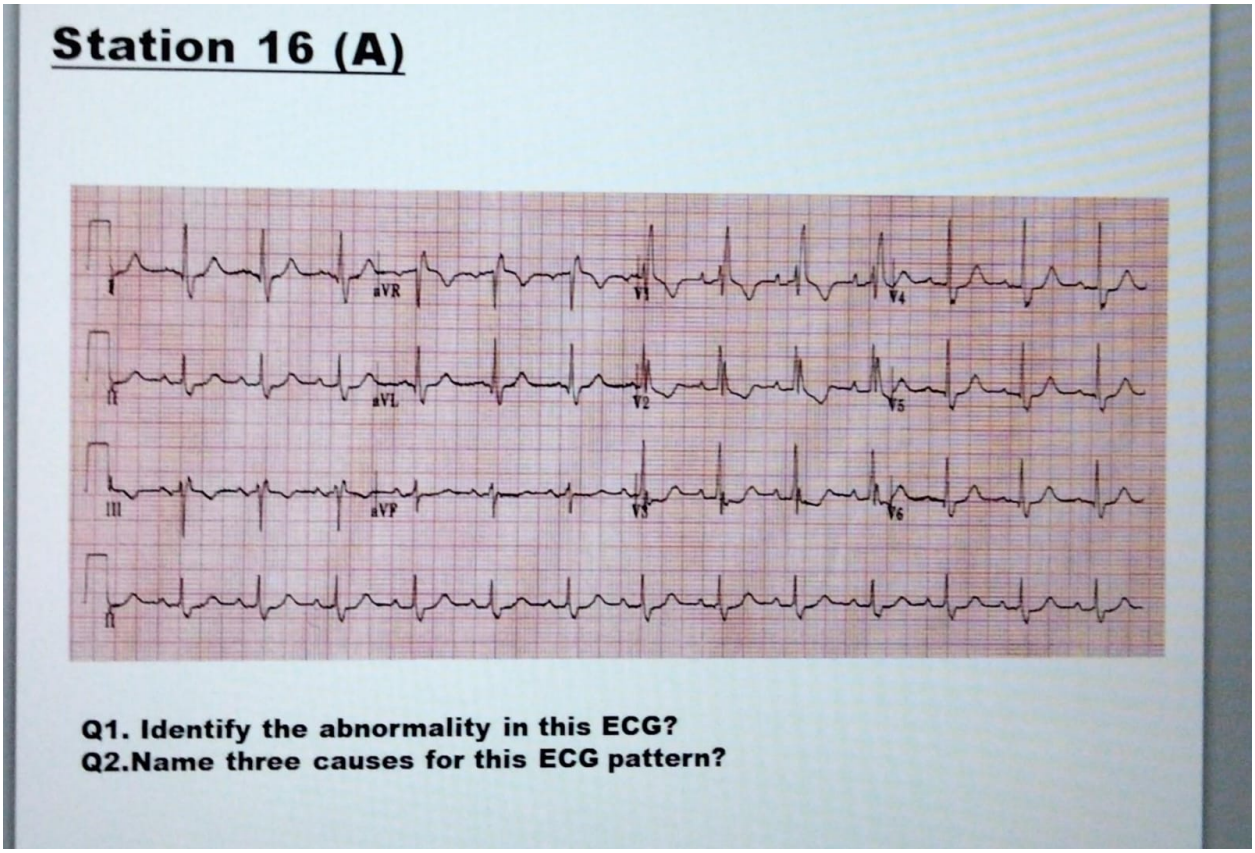
Treatment: Immediate needle decompression (2nd intercostal space, midclavicular line), followed by chest tube insertion

Triangle of Safety: Area for safe chest tube insertion—bounded by

Anterior: Lateral border of pectoralis major

Posterior: Lateral border of latissimus dorsi

Inferior: 5th intercostal space Superior: Base of the axilla



ECG Abnormality:

Atrial Fibrillation (AF)

Irregularly irregular rhythm

No distinct P waves

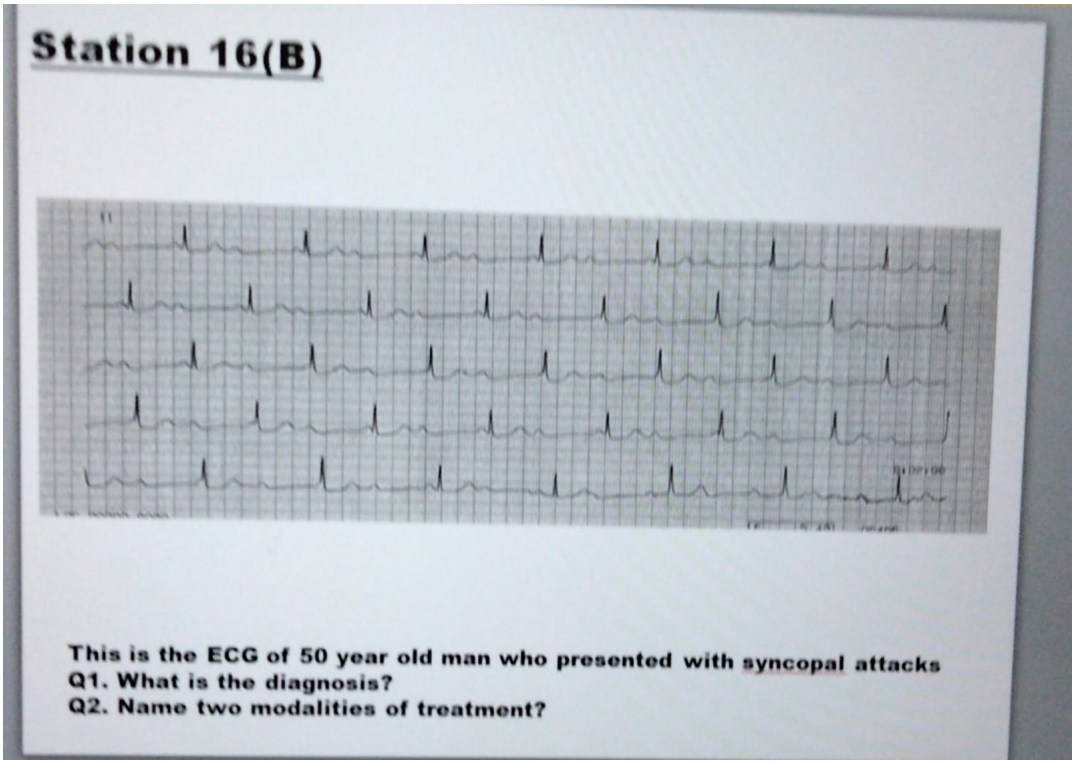
Variable R-R intervals

Three Causes:

1. Hypertension / Heart Disease

2. Hyperthyroidism

3. Electrolyte Imbalances (Hypokalemia, Hypomagnesemia)



Q1: Diagnosis

Complete Heart Block (Third-Degree AV Block)

Regular P waves & QRS complexes but no association

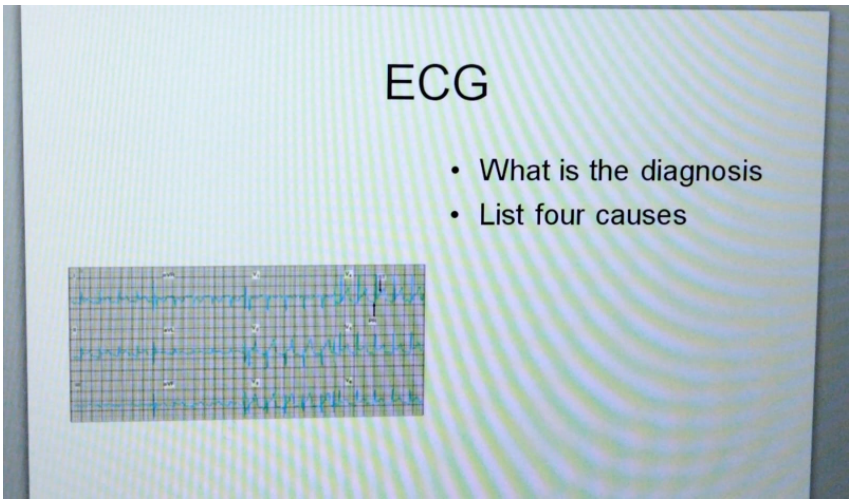
Bradycardia

Possible syncope (Stokes-Adams attacks)

Q2: Two Treatment Modalities

1. Immediate: Atropine, Temporary Pacing

2. Definitive: Permanent Pacemaker



Diagnosis

Ventricular Tachycardia (VT)

Causes

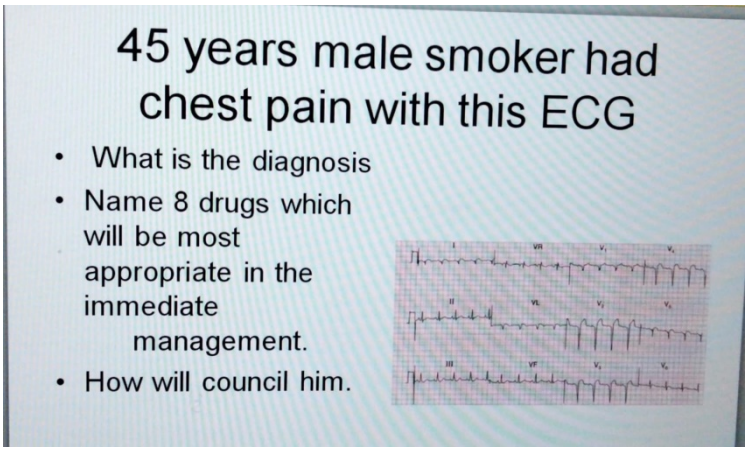
CAD / Myocardial Infarction

Electrolyte Imbalance (Hypokalemia, Hypomagnesemia)

Cardiomyopathy

Drug Toxicity (e.g., Digoxin, Antiarrhythmics)

Diagnosis



Acute Myocardial Infarction (STEMI/NSTEMI)

Immediate Management Drugs

MONA therapy

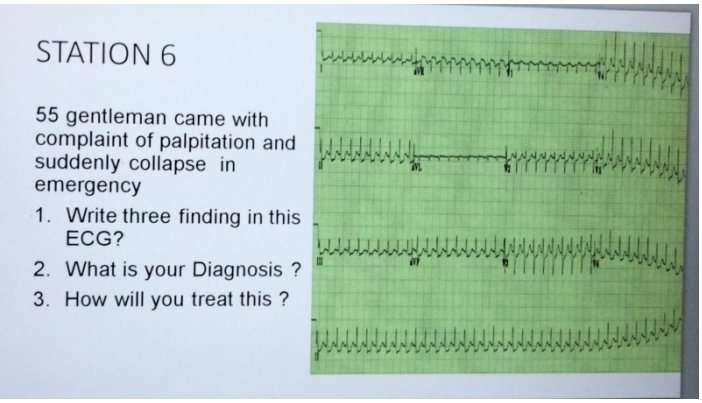
Abciximab,beta blocker ,enoxaparin,statin

Counseling

Quit smoking – Major risk factor

Lifestyle changes – Diet, exercise, stress management

Medication adherence –



Findings

Wide QRS

Regular tachycardia

No P waves

Diagnosis

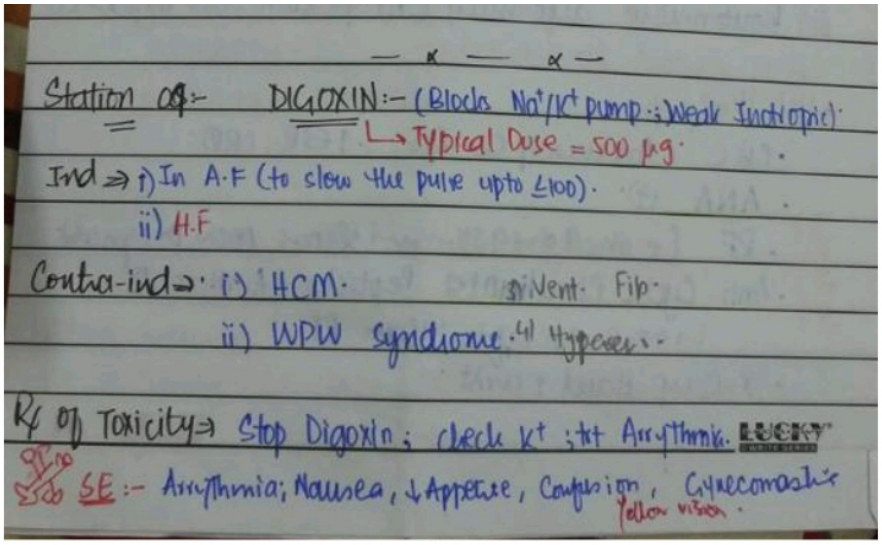
Ventricular Tachycardia

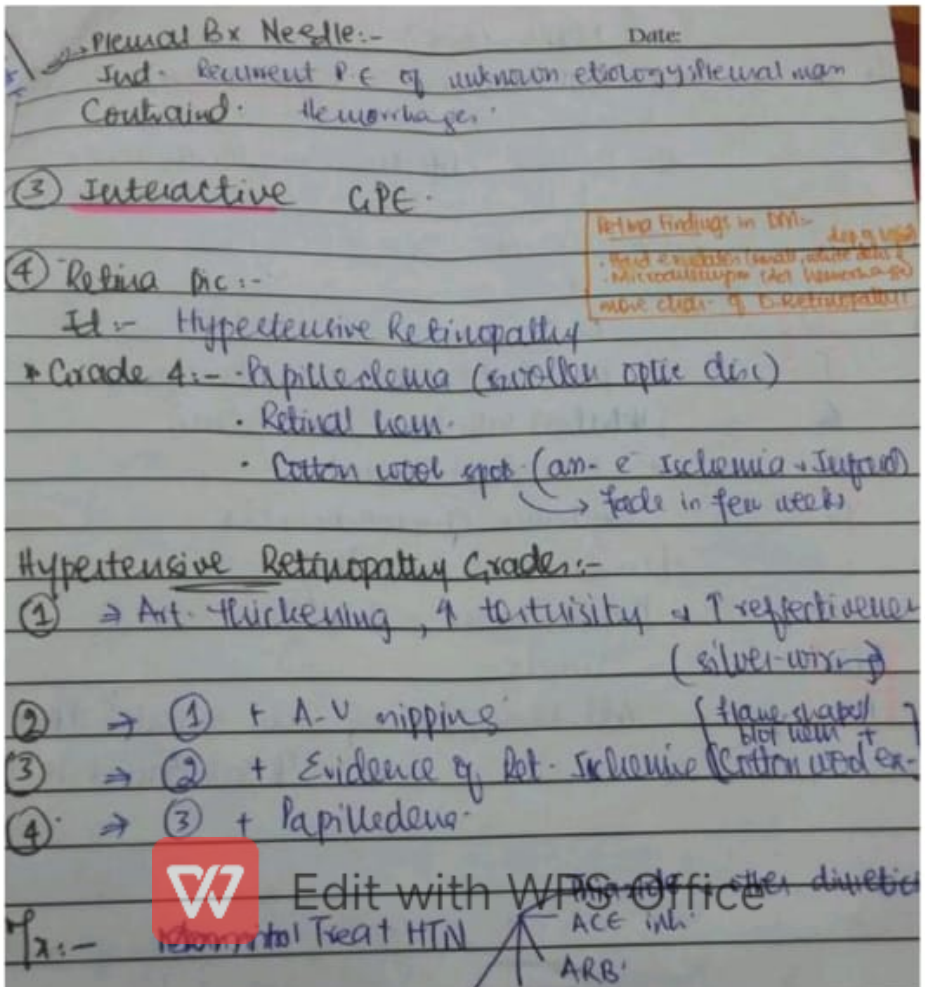
Treatment

Stable → Amiodarone

Unstable → Cardioversion

Pulseless → Defibrillation





Pleural Bx Needle:- Date:
Ind. Recurrent PE of unknown etiology/Pleural man
Contraind. Hemorrhages.

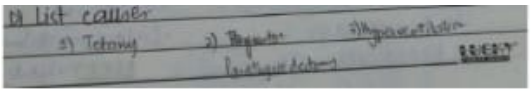
(3) Interactive GPE.

(4) Retina Pic:-
Id:- Hypertensive Retinopathy
Grade 4:- Papilledema (swollen optic disc)
- Retinal hem.
- Cotton wool spot (an- e Ischemia + Infarct) → fade in few weeks

Retina findings in DM:-

Hypertensive Retinopathy Grades:-
(1) → Art. thickening, ↑ tortuosity & ↑ reflectiveness (silver-wiring)
(2) → (1) + A-V nipping
(3) → (2) + Evidence of Ret. Ischemia (flame shaped hem + cotton wool ex-)
(4) → (3) + Papilledema

Mx:- Treat HTN ACE inh. ARB



STATTION ...Examine the patient chest from front

COMPONENT	KEY FEATURES	SCORE
Introduction	Self-introduction Explanation	0.5
Settings	Proper exposure and position.	0.5
Method	• Pulse and respiratory rate. • Looked for chest symmetry. • Trachea position. • Chest expansion. • Vocal fremitus • Apex beat • Auscultation	1 1 1 1 1 1 1 1.5

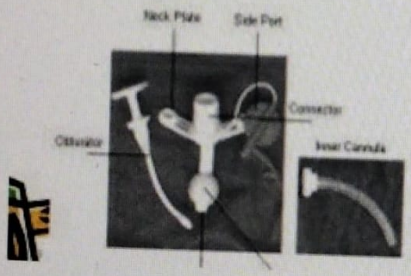
	• Findings and questions	
Thanking the patient		0.5
Total		10

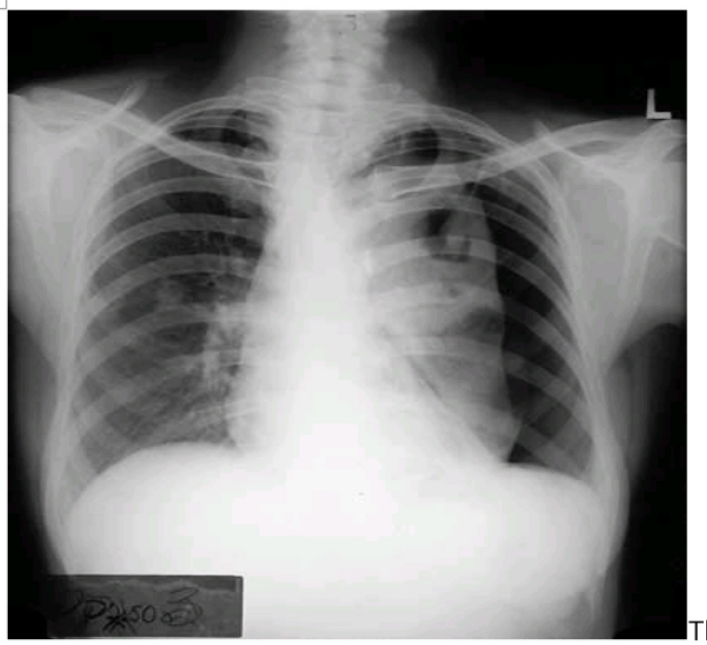
STATTION ..Examine the Abdomen

COMPONENT	KEY FEATURES	SCORE
Introduction	Self-introduction Explanation	0.5
Settings	Proper exposure and position.	0.5
Method	• Proper inspection. • Proper superficial palpation. • Palpation for the spleen. • Palpation for the liver	1 1 1 1 1

TRACHEOSTOMY TUBE

- *For artificial respiration.*
- *In tetanus to prevent laryngeal spasm.*



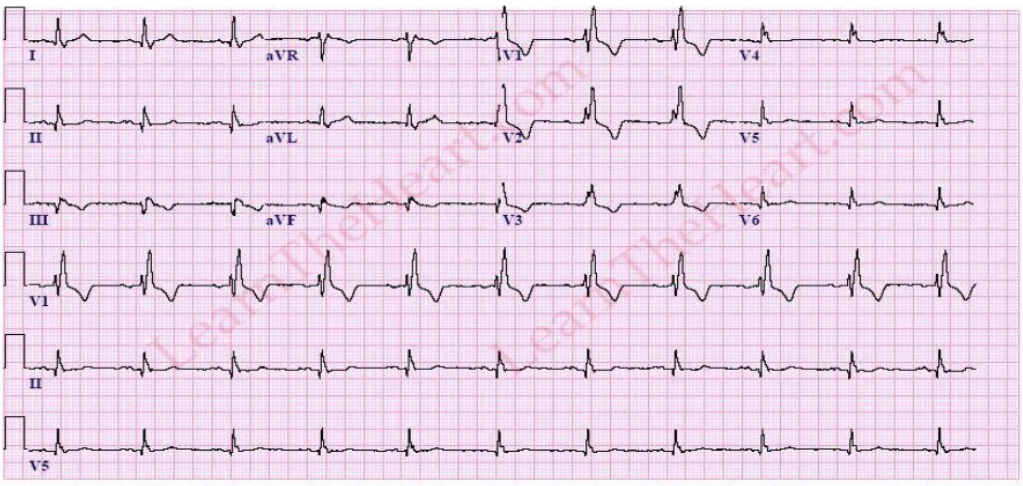


This patient presented with dyspnea

What abnormality is shown in this X ray?Mention three causes.Mention a single most appropriate therapeutic procedure.

Answers:

1. Left sided pneumothorax.
2. Emphysema, pulmonary tuberculosis, pneumonic bulla, Marfan syndrome, trauma.
3. Left side chest intubation with under water seal.



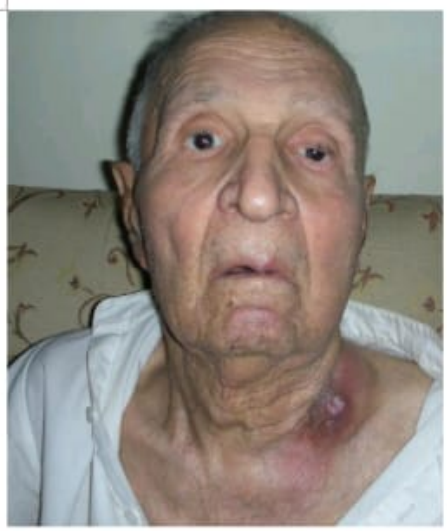
Write at least two abnormal findings in this ECG.

What important past history would you ask?

Answers:

1. ECG suggestive of RBBB and old inferior wall MI……. (5)
2. Past history of cardiac problems or any hospitalization…..(5)

Osler nodes



Horner syndrome

Discharging lymphnode in TB

SVC obstruction

STATION 04

A 25-year-old female patient was admitted in hospital for treatment of fever. On second day of treatment, she collapsed. Her Blood Pressure was 80 mmHg Systolic with unrecordable peripheral pulses.

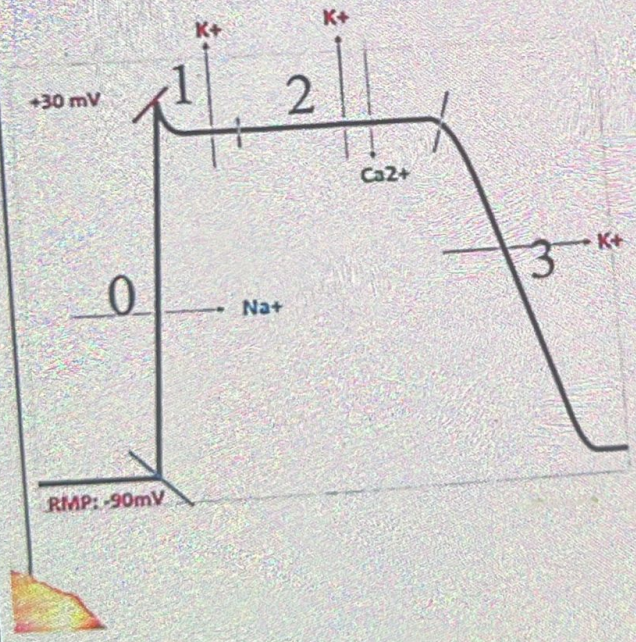
Question 1: What is the ECG interpretation? 6

Question 2: What is the underlying diagnosis? 4

station 4

1. regular tachycardia. VT. torse de point
2.

Cardiac Action Potential:



Phase 0: Opening of Na+ channels. (Depolarisation)

Phase 1: Opening of K+ channels

Phase 2: Opening of K+ and Ca2+ channels (Plateau phase)

Phase 3: Opening of K+ channels (Repolarisation)

STATION NO:

Ans 01 Teratology of fallot.

Ans 02

01_ Medical Management
* Maintain adequate hydration
* Temperature maintenance
* Blood Glucose level monitored
* Hb and HCt maintained in normal
* Antibiotics

02_ Management of hypoxemic spells.
* Oxygen inhalation
* Place the child in knee-chest position to increase vascular resistance.
* Morphine sulphate to decrease anxiety.
* B-receptor blocking agent to decrease muscular spasm.

03_ Surgical Management
- Palliative Surgery
  Blalock-Taussig shunt
  waterston shunt
  Potts shunt
- Corrective surgery
  closing VSD and resecting outflow obstruction

STATION NO:

TWO YEAR OLD GIRL CAME IN O.P.D WITH A COMPLAIN OF REPEATED EPISODES OF TAT SPAILS, SINCE THE AGE OF TWO MONTHS WITH CRY OR OVER ACTIVITY, AND NOT GROWING WELL. ON EXAMINATION PATIENT IS CONSCIOUS HAS PERIPHERAL AND AS WELL AS CENTRAL CYANOSIS, SEVERE CLUBBING, CHEST EXAMINATION WITHIN NORMAL LIMIT, CVS EXAMINATION EJECTION SYSTOLIC MURMUR ONLY RADIATING TO BACK SOFT SECOND HEART SOUND, ABDOMINAL AND CNS EXAMINATION WITHIN NORMAL LIMIT.

Q 1. WHAT IS MOST LIKELY DIAGNOSIS?

Q 2. WRITE DOWN THE STEPS OF MANAGEMENT?

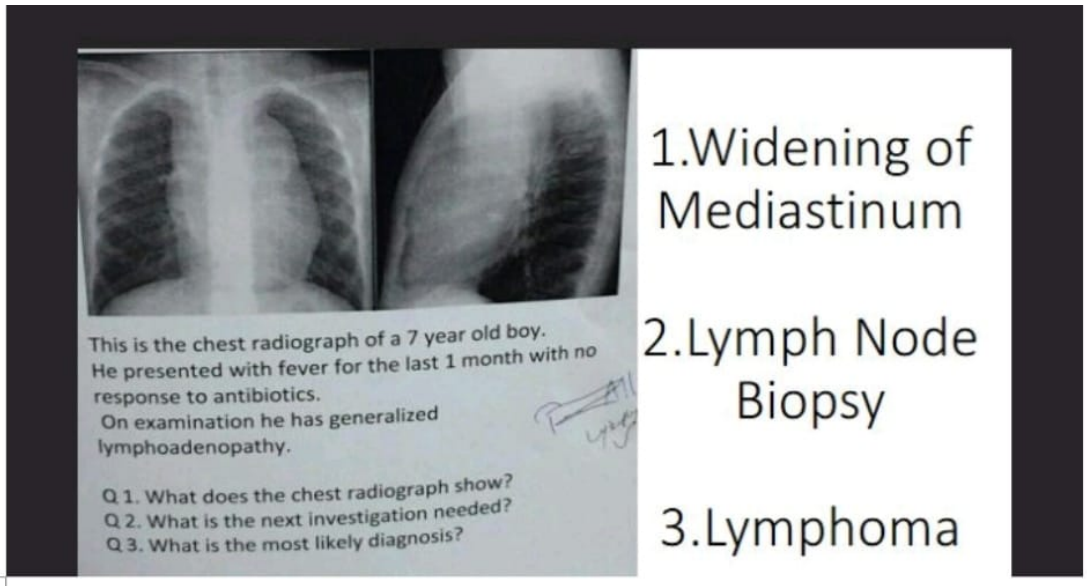
A 10 month old boy weighing 10 kg is brought by the mother because of coughing for the last 2 days. Examination shows his respiratory rate of 55 breaths per minute and chest indrawing. The rest of examination shows no abnormal findings.

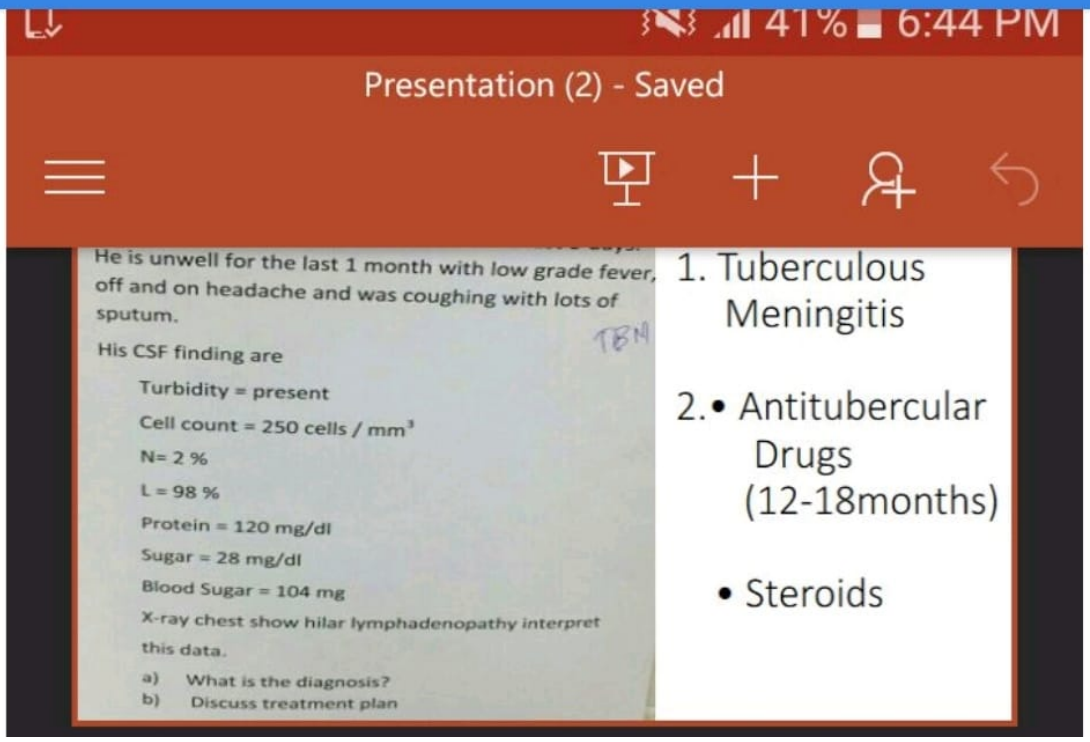
Q 1. Classify this child illness according to IMNCI?

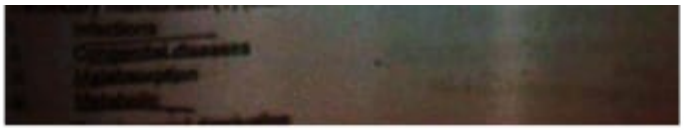
Q 2. Write his treatment according to IMNCI?

Q 3. Write instructions for follow-up of this child?

1.Severe Pnemonia
2.Give first dose of an appropriate antibiotic.
Treat wheezing if present
Treat the child to prevent hypoglycemia
Refer urgently to hospital.







Question No. 6

Topic: Infectious Disease

1: What is the radiological diagnosis? (1)

2: What are three other conditions in Pediatrics leading to such infiltrations on x-ray chest? (1.5)

3: What are five common findings on clinical examination? (2.5)

Key

1- Miliary Tuberculosis / mottling (1)

2- (0.5 each)

i. Atypical pneumonia

ii. Fungal pneumonia

iii. Viral pneumonitis

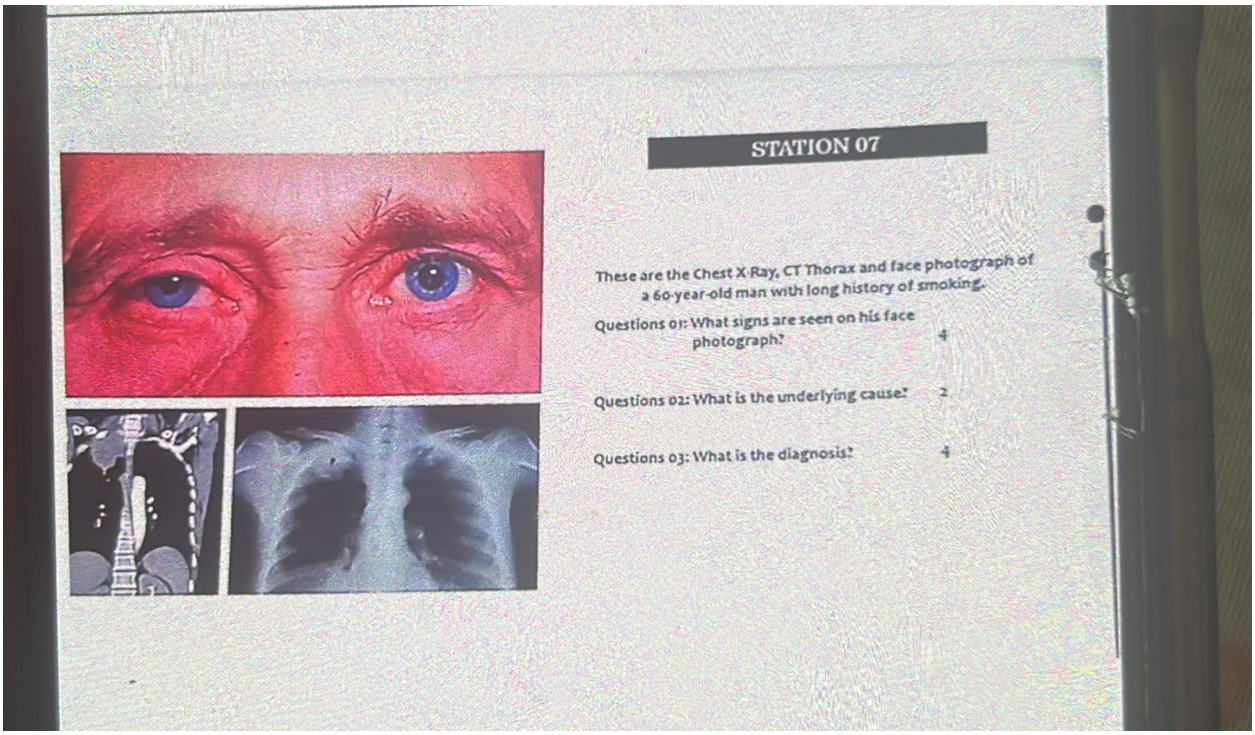
3- (0.5 each)

i. ✓ Emaciation

ii. ✓ Hepetosplenomegaly

iii. ✓ Choroid tubercles in eyes

3 causes of pansystolic murmur: VSD, mitral valve prolapse, papillary muscle dysfunction, tricuspid valve prolapse.



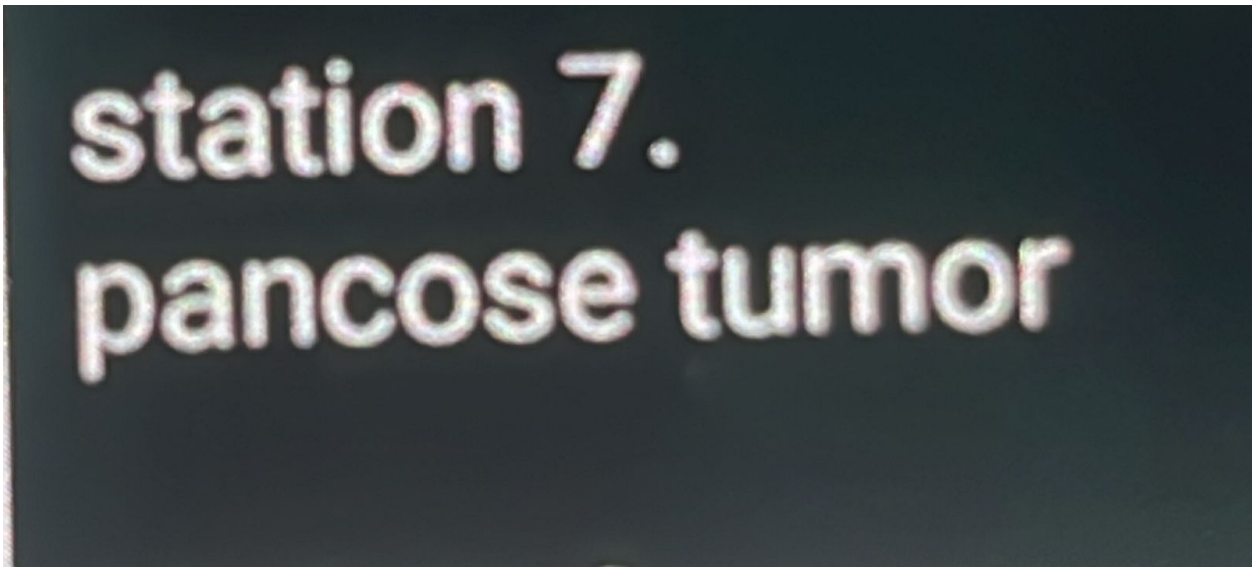
STATION 07

These are the Chest X-Ray, CT Thorax and face photograph of a 60-year-old man with long history of smoking.

Questions 01: What signs are seen on his face photograph? 4

Questions 02: What is the underlying cause? 2

Questions 03: What is the diagnosis? 4

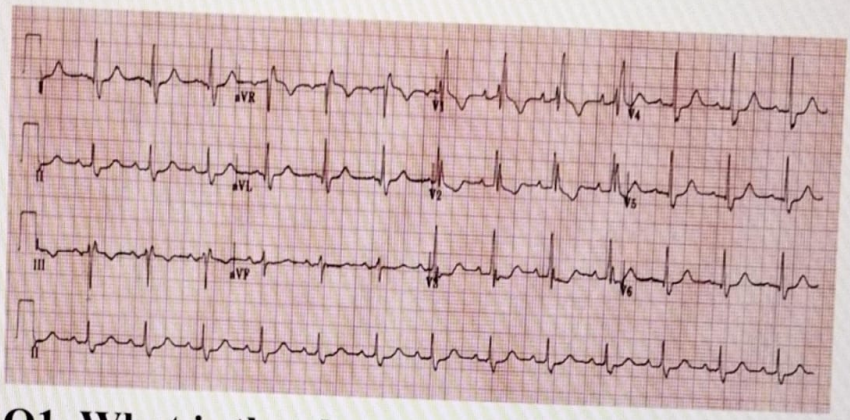


...(have patient breathe in and out) and kidney its not

Drugs contraindicated in Asthma

Asprin
NSAIDS
Beta blockers
Cholinergic drugs

Causes of bronchial breathing: asthma, bronchiectasis, COPD, Pneumonia, Interstitial Lung Disease



Q1. What is the abnormality in this ECG?

Q2. Name two causes for this abnormal ECG pattern?

LBBB
V1= W shape
V6= M shape

Opposite in RBBB

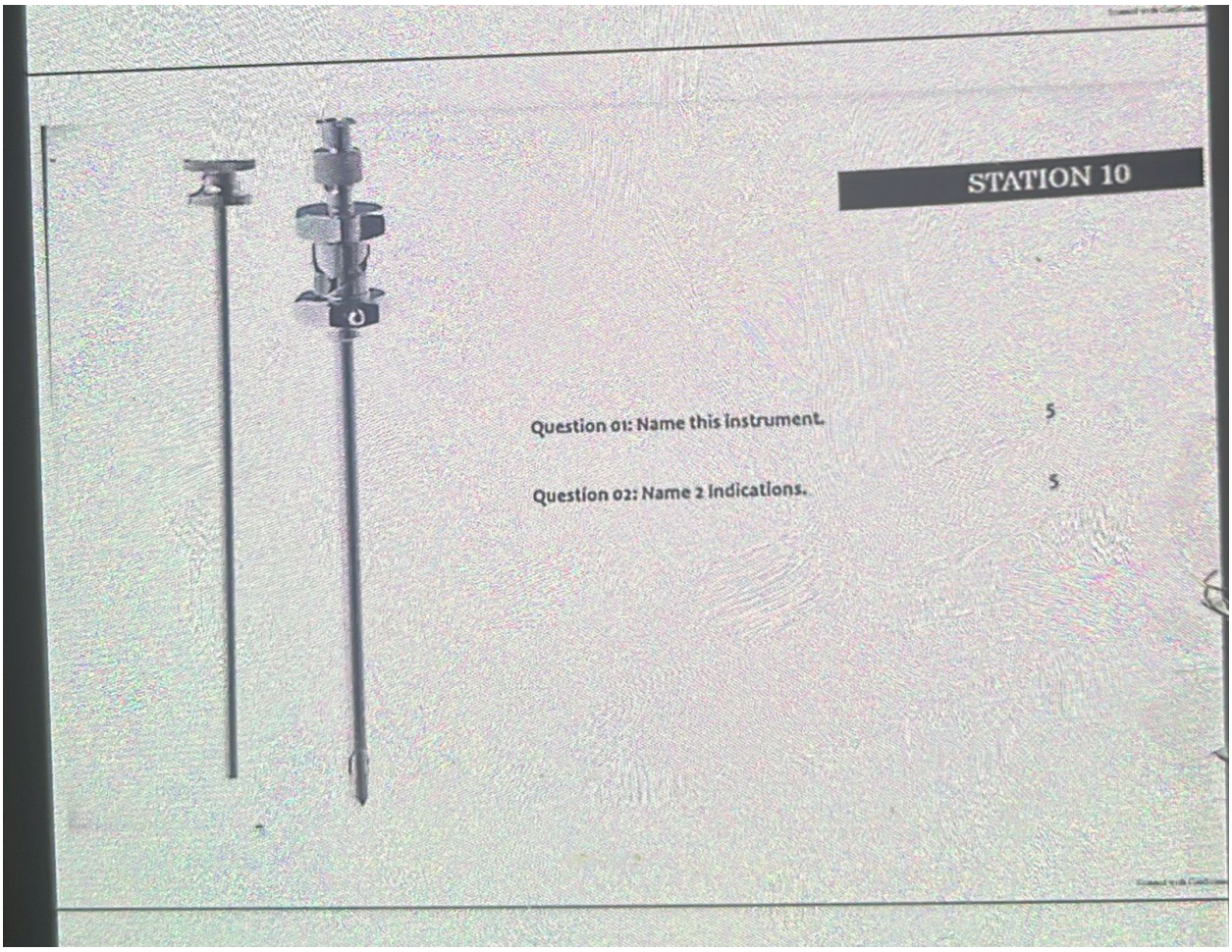
So this one is RBBB
2 causes of RBBB: Pulmonary Embolism, Right Ventricular Hypertrophy, Coronary Artery disease

STATION 09

Question 01: Describe the radiological findings. 5

Question 02: Name few conditions in which these lesions occur. 5

station 9
1 multiple homogeneous rounded shadow roughly 3 4 cm involving all zones of both lungs field. cannon balls. mets
2. chicken pox pneumonia. Mallory TB.



STATION 10

Question 01: Name this instrument. 5

Question 02: Name 2 indications. 5

station 10

1. abrahm needle. plural biopsy
2. sarcoidosis. TB.

This 42 year old heavy smoker presented with cough, weight loss and weakness of left upper limb.

Q1. What abnormality is evident in the face?

Q2.what further clinical sign would you look for in his face?

Q3.what is the composite diagnosis?

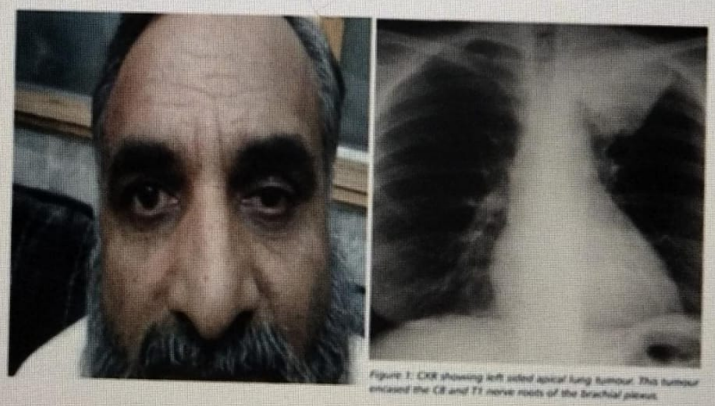


Figure 1: CXR showing left sided apical lung tumour. This tumour encased the C8 and T1 nerve roots of the brachial plexus.

What abnormality is evident in the face? Ptosis
Clinical signs: Swallowing problem, dry mouth, dry eyes, blurred vision,
Lambert Eaten Syndrome, because of SCC

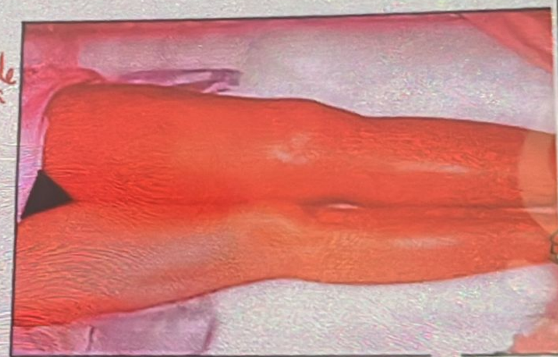
Station 25

Questions: DVT, cellulitis, lymphoedema

1. Give three differentials for the signs shown in this picture.
2. This lady is 10 days post natal; what is the likely diagnosis? → DVT
3. Give two investigations for this patient.
4. Mention three drugs which she needs.

- Doppler U/S
- D Dimer

→ T.PA.
Heparin
Aspirin
warfarin

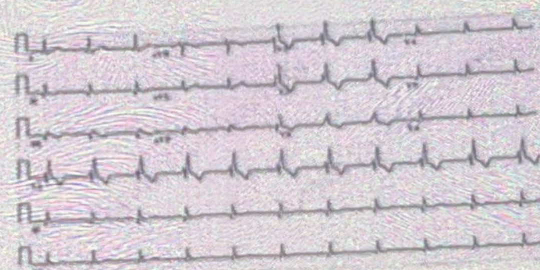


Station 26

Questions:

Write at least two abnormal findings in this ECG.

What important past history would you ask?

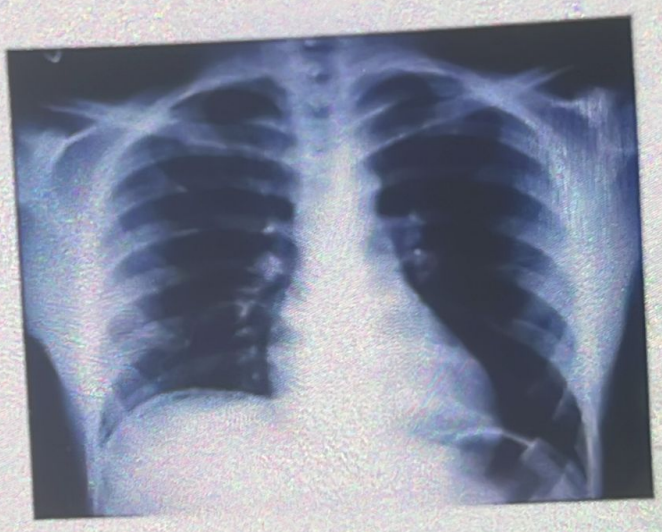


26
r wave in V1... wrong lead dextrocardia
post wall mi rbbb rvh
post wall mi

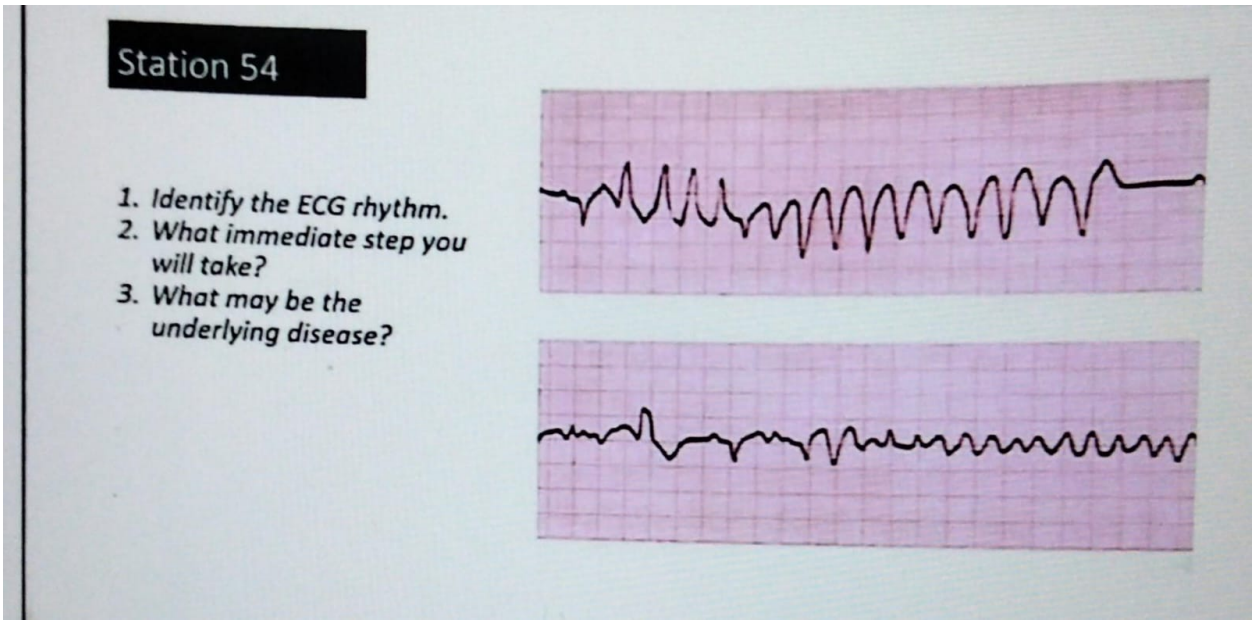
Station 35

Questions:

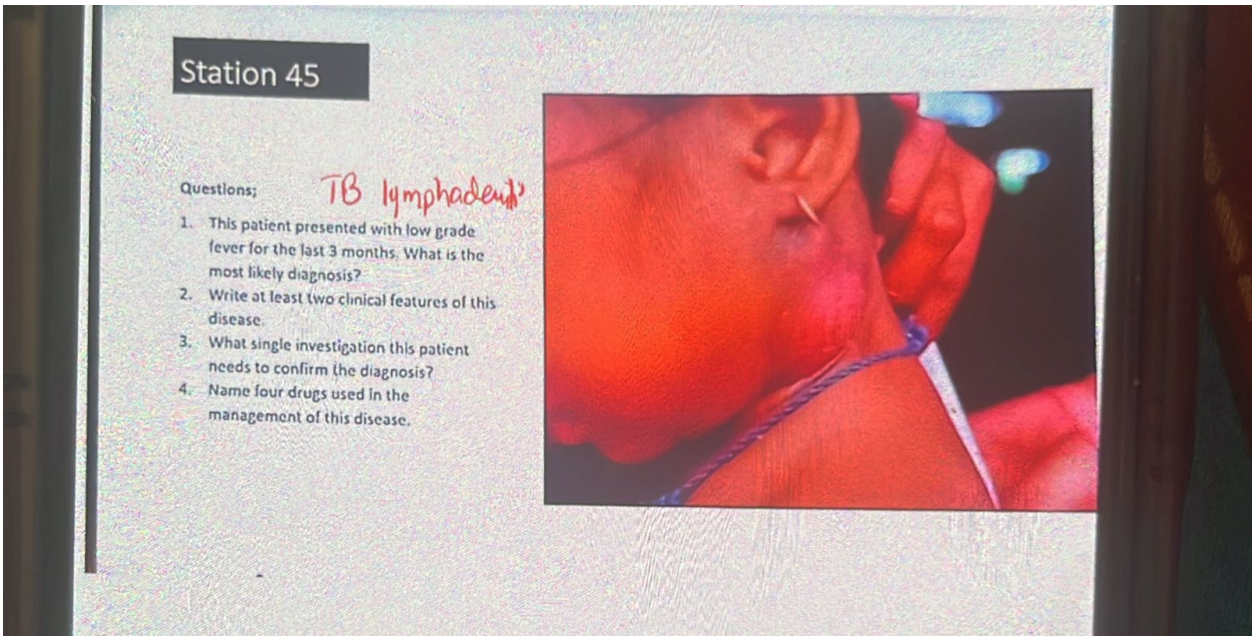
1. What abnormality is visible?
2. Mention two causes
3. Enumerate management steps.



35 Gas under diaphragm (NOT imp)
(In gut perforation



VENTRICULAR FIB

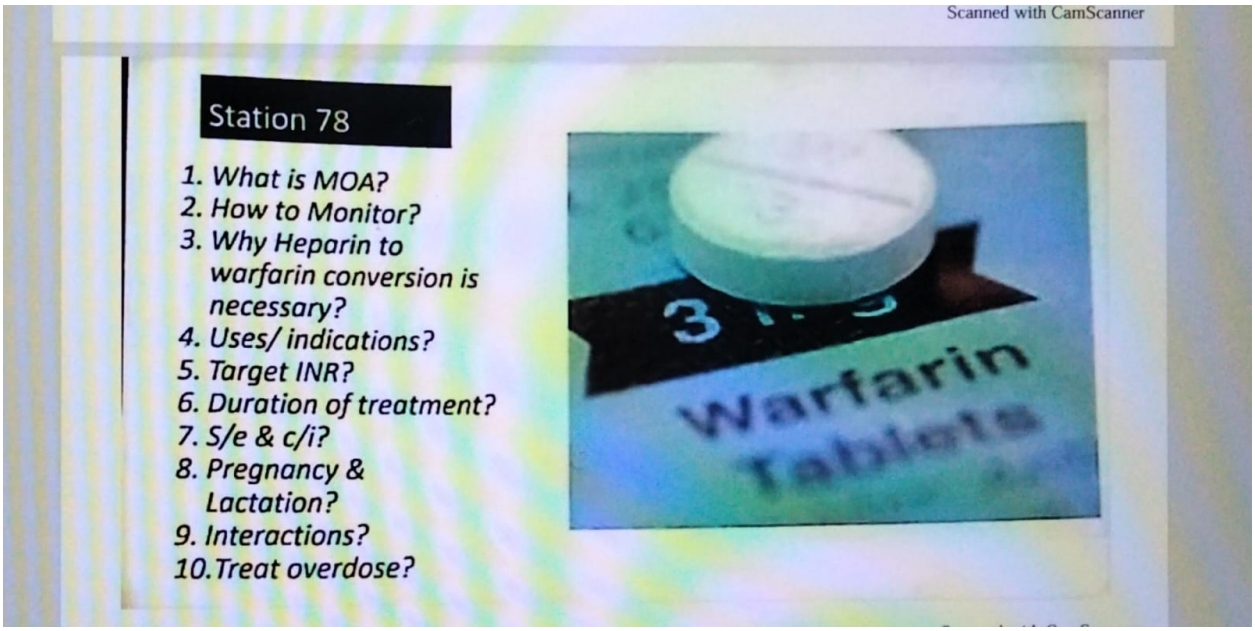


Salbutamol (Ventolin) – Key Points

MOA: β2 agonist → Bronchodilation.

Indications: Asthma, COPD, bronchospasm.

Side Effects: Tachycardia, tremors, hypokalemia.



Warfarin – Key Points

MOA: Inhibits VKORC1 → ↓ Factors II, VII, IX, X.

Monitoring: PT/INR.

Heparin to Warfarin: Warfarin delayed action, Heparin bridges.

Uses: DVT, PE, AF, mechanical valves, hypercoagulability.

Target INR: 2–3 (most), 2.5–3.5 (mechanical valves).

Duration: 3–6 months (transient risk), lifelong (recurrent/clotting risk).

S/E: Bleeding, skin necrosis, teratogenic.

C/I: Pregnancy, active bleeding, recent surgery.

Interactions:

↑ INR: Amiodarone, antibiotics, NSAIDs, liver disease.

↓ INR: Rifampin, carbamazepine, vitamin K foods.

Overdose:

INR <5: Hold dose.

INR 5–9: Oral/IV vitamin K.

Major bleeding: IV vitamin K + PCC/FFP.

Q:

An 11 months old girl presents to OPD with complaints of delayed walking.

She has been breast fed till 9 months of age exclusively, weaning started at 9 months of age.

On examination there is bulbous , non tender enlargement of wrists and palpable enlargement of costochondral junctions.

There are no deformities of legs or thorax.

Her anterior fontanel is wide open and her muscle tone appears to be decreased.

- Serum calcium = 7.0 mg
- Alkaline phosphate = 2257 IU/l

Questions:

1. What is the diagnosis?
2. How would you treat the child?

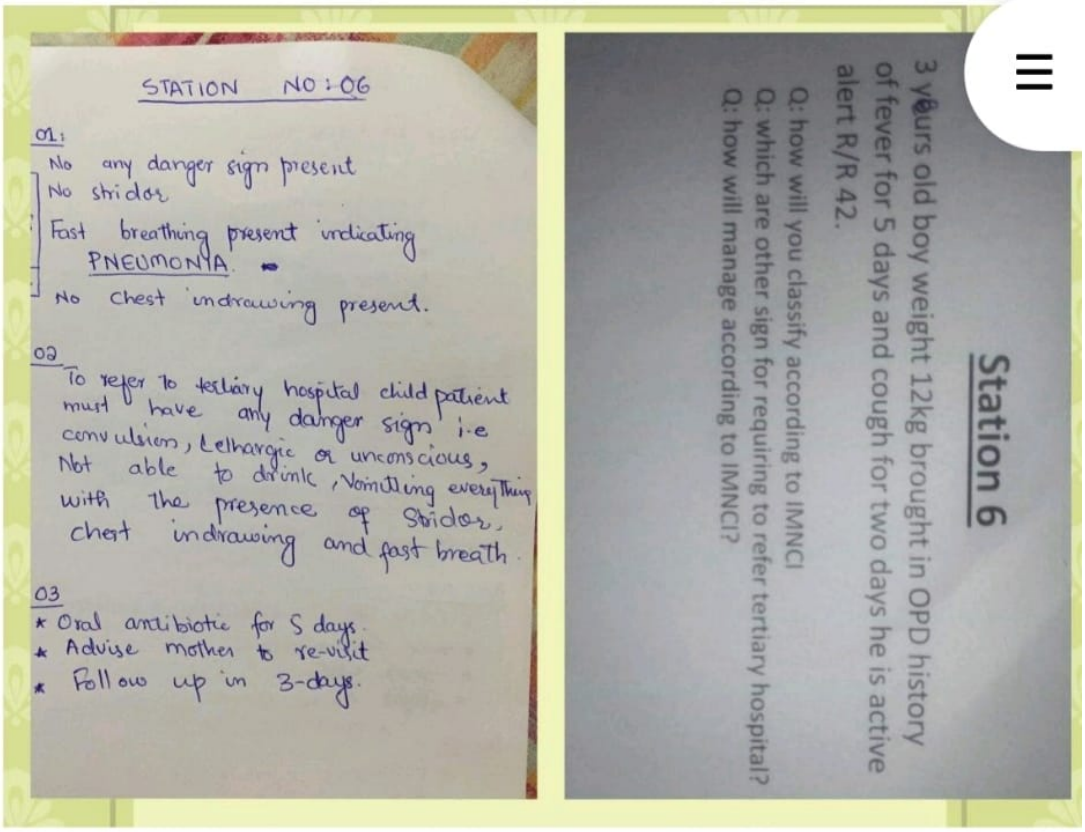
A 10 month old boy weighing 10 kg is brought by the mother because of coughing for the last 2 days. Examination shows his respiratory rate of 55 breaths per minute and chest indrawing. The rest of examination shows no abnormal findings.

Q 1. Classify this child illness according to IMNCI?

Q 2. Write his treatment according to IMNCI?

Q 3. Write instructions for follow-up of this child?

* Antibiotics



STATION NO: 06

01:
No any danger sign present
No stridor
Fast breathing present indicating PNEUMONIA.
No chest indrawing present.

02
To refer to tertiary hospital child patient must have any danger sign i.e convulsion, Lethargic or unconscious, Not able to drink, Vomiting everything with the presence of Stridor, chest indrawing and fast breath.

03
* Oral antibiotic for 5 days.
* Advise mother to re-visit
* Follow up in 3-days.

Station 6

3 years old boy weight 12kg brought in OPD history of fever for 5 days and cough for two days he is active alert R/R 42.

Q: how will you classify according to IMNCI
Q: which are other sign for requiring to refer tertiary hospital?
Q: how will manage according to IMNCI?