CLINICAL PEARLS IN RESPIRATORY MEDICINE

Author
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With Best Compliments From

LUPIN
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Specialty Care
PREFACE

DR.P.D.MOTIANI
PRESIDENT, NCCP(I)

Chronic Obstructive Pulmonary Disease (COPD) is a common preventable and communicable disease that is characterized by persistent respiratory symptoms and airflow limitations that is due to airway and/or alveolar abnormality usually caused by significant exposure to noxious particles or gases. It is associated with significant, concomitant chronic disease which increases its morbidity and mortality (GOLD 2020).

NAPCON is the national platform for scientific event to be participated by National and International eminent faculty, practitioners and PG students to exchange their views on various aspects of pulmonary medicine. On this event, the book is going to be released, compiled by Dr.Vishnu Sharma which includes case-based approach on COPD, informative for pulmonologist in understanding the association of cardiac complications, its diagnosis with basis, and MCQ will be helpful for students. I extend my best wishes to Dr. Vishnu Sharma for his efforts and to PG students for opportunity to have this valuable book with them in the NAPCON kit.

DR.P.D.Motiani
PREFACE

DR. S. N. Gaur
SECRETARY, NCCP(I)

National College of Chest Physicians (India) is an academic organization dedicated to provide scientific knowledge to the persons attached to the specialty of Respiratory Medicine, from 1959. In continuation of this effort, a Book comprising of MCQs, PG Quiz mainly for the benefit of the Postgraduates.

NAPCON is the national platform for scientific event to be participated by National and International Eminent faculty, practitioners and PG students, jointly organized by NCCP(I) and ICS and this year NAPCON-2020 is being organized from Jan., 27-31, 2021 on virtual platform. The above Book will be released as e-book (ahead of Publication) during the conference in the NAPCON-20 E-kit of the delegates. It will be later published as a publication of NCCP(I).
The Book is compiled by Dr. Vishnu Sharma, which include case-based approach on respiratory diseases with discussions, and MCQs, which will be definitely helpful specially to P.G. students. I extend my best wishes to Dr. Vishnu Sharma for his efforts in compiling interesting cases and MCQs and to present it in a book form. This will be a real asset specially for the PG students of Respiratory Medicine. I wish a happy academic reading.

**DR. S. N. GAUR**
Preface

My observations and experience since last two decades as postgraduate teacher has led to writing this book. Primary aim of this book is to make the beginners in respiratory medicine to understand the basic concepts in a simple way. This book has three sections – interactive case discussions, discussion on chest images and multiple choice questions. One can easily understand the topics as I have tried to present the discussion in interesting way with clinical touch. One can self-assess using the discussions and MCQ.

I express my sincere gratitude to Professor S.N. Gaur, honourable secretary of NCCP for suggesting me to write this book and constantly encouraging me in the process. My sincere gratitude to Professor P. D. Motiani, President, NCCP. for his guidance. I express my sincere gratitude to Dr. Nikhil Sarangdhar, Organizing Secretary, NAPCON 2020 for his help in bringing out this book. I am indebted to NCCP for releasing the book during Napcon 2020. My sincere gratitude to my teacher Prof V.K. Arora who has been a guide in my academic career.

I also express my gratitude to those have contributed and helped me in compiling this book. My sincere thanks to all the Past and present postgraduates in our department who helped me in compiling this book, especially in collecting the images and patient details.

I also express my gratitude to Lupin Respira Speciality Care for designing and sponsoring the publication of the book.

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Section 1

Interactive Case Discussions
A CURIOUS CASE OF ACUTE ON CHRONIC DYSPNEA.

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History
A 64-year-old male presented with complaints of slowly progressive breathlessness since last 6 years, increased since last one week from MMRC grade 2 to grade 3. He had cough with scanty mucoid expectoration and low grade intermittent fever since one week. He had bilateral lower limb swelling since 5 days. There was no diurnal or seasonal variation to his breathlessness. No history of any allergic symptoms. He had no history of chest pain or hemoptysis. No history of change in voice, palpitation or paroxysmal nocturnal dyspnea. No history of decreased urine output or abdominal distension. No history of loss of weight or appetite. He had no symptoms referable to other systems. No past history of tuberculosis. No history of diabetes mellitus / hypertension or any other significant illness in the past. He was diagnosed as COPD, was on inhalational medications since last 3 years with partial relief to dyspnea (ICS+LABA). Symptoms were partially relieved with medications. He was working as a shopkeeper since last 30 years. He used to smoke 15-20 beedis per day for 25 years, stopped smoking two months back.

Question 1 Which of the following is the MOST LIKELY diagnosis?
1. AECOPD.
2. Myocardial infarction with pulmonary edema
3. Infective exacerbation of bronchial asthma.
4. COPD with bronchogenic carcinoma.
5. Acute exacerbation of interstitial lung disease.

Answer 1. Slowly progressive dyspnea in an elderly smoker with acute exacerbation of symptoms with increased cough and low grade fever is most likely to be due to AECOPD. He had no cardiac symptoms. He had no other symptoms like change in voice, chest pain, hemoptysis or weight loss to suspect bronchogenic carcinoma. He had no symptoms suggestive of bronchial asthma. ILD usually presents with progressive dyspnea. ILD remaining stable with grade 2 dyspnea for 6 years is unusual.

General physical Examination
His heart rate was 114 beat/ minute, Respiratory rate - 28 cycles/ minute. He had no pallor/ icterus/cyanosis/ clubbing/ cervical lymphadenopathy. Bilateral pitting pedal edema was present. JVP was raised. Spo2 was 82 % at room air.

Respiratory system He had features of emphysema with increased antero posterior diameter of chest with bilateral decreased intensity of breath sounds heard in all areas. Bilateral expiratory polyphonic ronchi were heard. Loud P2 was heard in pulmonary area. Gastrointestinal and CNS examination was normal.

Question 2. Which of the following is MOST LIKELY diagnosis?
1. AECOPD
2. Chronic congestive cardiac failure
3. COPD with corpulmonale
4. Acute cardiogenic pulmonary edema
5. COPD with respiratory failure

Answer – 3. Patient has feature of corpulmonale – raised JVP, pedal edema, loud P2 with symptoms and signs of COPD.

Question 3. Which of the following investigation is NOT indicated in this patient on admission?
1) Chest X-RAY
2) ECG
3) Echocardiogram
4) Spirometry
5) ABG
**Answer** - 4. Patient has acute exacerbation of breathlessness with hypoxia. Hence spirometry is not indicated now. Spirometry should be done as a planned procedure once the patient is stable. Cardiac evaluation should be in all elderly patients with AECOPD as cardiac co morbidity is common in patients with COPD.

Chest x-ray

**Question 4.** Which of the following is **NOT** a radiological change in COPD?
1. Presence of bulla
2. Reduced retrosternal airspace
3. Flattening of the diaphragm
4. Dilated main pulmonary arteries
5. Peripheral pruning of blood vessels

**Answer** 2. Retrosternal airspace will increase in COPD due to hyperinflation.

**ECG:**

**Question 5.** What is the most likely cause for ECG changes?
1. COPD – Corpulmonale
2. Acute inferior wall myocardial infarction
3. Acute anteroseptal myocardial infarction
4. Chronic congestive cardiac failure
5. Pericardial effusion

**Answer** 1. ECG shows sinus tachycardia, right axis deviation, poor progression of R wave, right ventricular strain. All these changes are suggestive of COPD – Corpulmonale.
**Question 6.** What is the next investigation?
1. D- Dimer estimation
2. ABG
3. Contrast enhanced CT scan of thorax
4. HRCT of thorax
5. Echocardiography

**Answer** 2. Patient has hypoxia. Hence the next investigation is ABG.

**Question 7.** Which of the following is **NOT** an indication for ABG in a COPD patient?
1. For assessing the need for long term home oxygen
2. Stage 4 COPD
3. FEV1 less than 70% predicted
4. Clinical signs of respiratory failure
5. Signs of Chronic cor pulmonale

**Answer** 3. ABG is indicated when FEV1 is less than 30% as most of these patients develop resting hypoxia.

**ABG report**
ABG was taken at room air.
Ph - 7.52
PCO2 - 21.9 mmHg
PO2 – 50mmHg
Na – 127
K – 3.81
Cl – 99
So2- 84
HCO3 - 21

**Question 8.** What is the diagnosis from ABG?
1. Respiratory acidosis
2. Metabolic acidosis
3. Respiratory alkalosis
4. Metabolic alkalosis
5. Mixed acidosis

**Answer** 3. ABG shows hypoxemia with respiratory alkalosis.

**Question 9.** Which of the following is **LEAST LIKELY** to cause respiratory alkalosis in acute exacerbation of dyspnea in a COPD patient?
1. Pneumothorax.
2. Cardiogenic pulmonary edema.
3. Pulmonary embolism.
4. Pneumonia.
5. Acute infective exacerbation of COPD

**Answer** 5. Acute infective exacerbation of COPD usually leads to hypercapnic respiratory failure.

**Causes for respiratory alkalosis in COPD patient with acute exacerbation of dyspnea**
- Pain, Fever.
- Respiratory causes: Pneumonia, pleural effusion and pneumothorax.
- Cardiovascular: Myocardial ischemia, infarction, cardiogenic pulmonary edema, pulmonary embolism.
- Gastrointestinal: Peritonitis, pancreatitis.
- Sepsis
**Question 10.** What is the next investigation?

1. CT pulmonary angiogram
2. 2D echocardiography
3. CECT thorax
4. USG chest and abdomen
5. Serum amylase

**Answer** 2. There was no obvious respiratory or GIT cause for respiratory alkalosis. Hence echocardiography is required to find underlying cardiac cause if any. When there is no obvious cause for exacerbation of dyspnea in a patient with COPD pulmonary embolism should be ruled out. Further investigations

**2D ECHO:** Dilated Right atrium and right ventricle with severe PH and mild TR. No Regional wall motion abnormality. No pericardial effusion. LVEF: 60%.

**Question 11.** What is the MOST LIKELY diagnosis?

1. Chronic Cor pulmonale due to COPD
2. Chronic thrombo embolic PAH
3. COPD with Acute pulmonary embolism
4. Cardiogenic pulmonary edema
5. COPD with chronic right heart failure

**Answer** 3. This patient has AECOPD with acute Cor pulmonale with respiratory alkalosis which is highly suggestive of acute pulmonary embolism as the cause for increased dyspnea.

**Question 12.** What is the next DIAGNOSTIC investigation?

1. D Dimer
2. Lower limb Doppler
3. CT pulmonary angiogram
4. Coagulation profile
5. DLCO

**Answer** 3. Diagnostic investigation in a suspected pulmonary embolism is CT pulmonary angiogram

**CT pulmonary angiogram**

**CTPA report.** Filling defect is noted in bilateral inferior branch of pulmonary artery. A thrombus is seen in right ventricle. Right atrium and right ventricle are dilated. Small pleural effusion noted on the right sided.

Doppler study of lower limbs was normal.

**USG abdomen:** Normal study.
**Question 13.** Which of following investigations if normal rules out massive pulmonary embolism?

1. D-dimer.
2. ECG.
3. Chest x-ray
4. 2 D echo
5. Lower limb Doppler.

**Answer** 4. In massive pulmonary embolism 2 D echo will be abnormal.

**Echocardiographic signs of pulmonary embolism**

Hypokinesis of right ventricular wall.

McConnell’s sign - Regional pattern of acute right ventricular dysfunction seen on transthoracic echocardiography. In acute pulmonary embolism akinesia of the mid-free right ventricular wall with preserved apical contractility may be seen.

Dilatation of right ventricle

End-diastolic diameter >30 mm in parasternal view

Right ventricle larger than left ventricle in subcostal or apical view

Increased tricuspid velocity >26 m/sec

Paradoxical right ventricle septal systolic motion

**Final diagnosis**

COPD with acute pulmonary thrombo embolism.

Patient was started on anticoagulants & his blood coagulation profile was monitored. Along with anticoagulants COPD treatment was continued. Patient made slow uneventful recovery. He was discharged after two weeks in a stable condition off oxygen.

**Question 14.** Which of the following is not a predisposing cause for pulmonary embolism in COPD?

1) Polycythemia
2) Overdose of bronchodilators
3) Dehydration during acute exacerbation
4) Immobility
5) Associated bronchogenic carcinoma

**Answer** 2. Bronchodilators do not predispose to embolism

**When to suspect pulmonary embolism in COPD**

COPD patients have increased incidence of pulmonary thrombo embolism. Besides the apparent predisposing causes and clinical symptoms, PE may not present with typical symptoms and signs in COPD patients. Atypical features which may warrant further evaluation in COPD patients for PE include the following-

- Sudden exacerbation of dyspnea without any apparent cause
- Dyspnea disproportion to the severity of COPD
- Signs of Acute or chronic Corpulmonale in mild or moderate COPD
- PAH out of proportion to the severity of COPD
- Dyspnea without any other symptoms or respiratory findings in a chronic smoker.
- Pleuritic pain or hemoptysis without obvious cause.
- Circulatory collapse without obvious cause.
- Absence of a known clinical or thrombophilic predisposition is not a contraindication for the evaluation of PE in case of clinical suspicion
Take home message

- COPD is one of the causes for progressive dyspnea.
- There are many causes for acute exacerbation of breathlessness in COPD.
- When clinical history / examination findings and investigations doesn't fit into COPD exacerbations, other causes of acute dyspnea should be ruled out.

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A curious case of pleural effusion

Authors

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History: A 65 years old male was admitted in orthopedic ward with pain and swelling over the left thigh for 1 month. He had fracture femur for which internal fixation was done 15 year back. He had slipped while walking one month back after which the pain started. However, there were no external injuries or chest trauma.

On evaluation he was diagnosed to have fracture non union of lower one third of femur. Implant removal & bone grafting was advised. He was referred to us for pre operative assessment because chest x-ray showed some abnormality.

He gave history of mild dull aching chest pain on left side since last 3 weeks. He had no fever, cough, sputum, breathlessness, hemoptysis or any change in voice. He had no cardiac symptoms. No past history of any respiratory or cardiac illness. He was not a known diabetic. No history of contact with tuberculosis. No addictions. He was a non smoker

Physical findings

General physical examination was unremarkable. He had no respiratory distress or tachypnea. His vitals were normal. Chest movements were reduced on left side. Stony dull note on percussion was elicited on all lung areas on left side. Breath sounds were absent on left side. No added sounds. Cardiovascular and other systemic examination was normal except for the pain and tenderness in left thigh.

Question 1: What is the MOST LIKELY diagnosis?

1. Diaphragmatic eventration on left side
2. Pleural thickening on left side
3. Pneumonia left side
4. Collapse left lung
5. Pleural effusion left side

Answer: 5. Physical findings are characteristic of pleural effusion on left side. 
A chest x-ray which was taken 3 weeks back in a local health care facility was available with the patient.
Question 2: With this chest x-ray, what is the MOST LIKELY differential diagnosis?

1. Encysted pleural effusion
2. Bronchogenic carcinoma
3. Mediastinal Mass
4. Collapse left lower lobe
5. Consolidation

Answer 2 and 3

Most probable differential diagnosis could be either Bronchogenic carcinoma or mediastinal mass as the x-ray shows a dense opacity with medial border merging with mediastinum. No radiological signs of consolidation, encysted pleural effusion or collapse are visible.

However this x-ray finding did not correlate with the physical findings. This x-ray was taken 3 weeks back. Hence a repeat chest x-ray AP view was taken as the patient could not stand.

Second chest x-ray showed homogenous opacity on left side suggestive of pleural effusion. In view of this patient was transferred to respiratory medicine ward for further evaluation and management.

Question 3: Which of the following is LEAST LIKELY to cause minimal symptoms with apparently large effusion in Chest x-ray?

1. Encysted effusion
2. X-ray taken in a bedridden patient
3. Rapidly accumulating effusion
4. Otherwise healthy individual at rest
5. Longstanding effusion

Answer: 3. When pleural effusion accumulates rapidly, symptoms will be more. If effusion accumulates slowly and patient does not have any other underlying lung parenchymal or airway disease or other co morbid illness, symptoms will be less.

Other investigations

Complete blood Count, blood sugar, blood urea, serum creatinine, serum electrolytes, liver function test, platelet count, urine routine examination reports were normal. Ultra sound abdomen, ECG, Echocardiography were normal.
**Question 4:** What is the next investigation?

1. Pleural fluid aspiration
2. Contrast enhanced CT scan of the thorax
3. Ultrasound of left hemithorax
4. Intercostal tube drain
5. Thoracoscopy

**Answer:** 3. When chest x-ray is suggestive of pleural effusion it should be confirmed by thoracic ultrasound. Thoracic ultrasound is useful to confirm the diagnosis, differentiate pleural effusion from other causes for opacity in chest x-ray, quantify the amount of pleural fluid, mark the site for pleural aspiration or USG guided aspiration. USG can also give some clue regarding the cause for effusion – whether exudate or transudate, empyema, encystment, condition of underlying lung and pleura.

USG thorax revealed left sided pleural effusion of about 1litres. There was no loculation. Underlying lung and pleura appeared normal. Pleural fluid aspiration was done. 800ml slightly turbid pleural fluid was drained.

**Pleural fluid analysis reports:** Protein 4.9 gm%. LDH 3672 Sugar 62 Amylase 60
Cytology- No malignant cells. Polymorphs 60%, Lymphocytes 38% Eosinophils 2%. No mesothelial cells

Fluid Analysis suggestive of exudative effusion with predominant neutrophils probably empyema

Some facts adding to the curiosity.....

Chest x-ray taken initially showed opacity in the left hemithorax. Chest x-ray after 3 weeks shows pleural effusion on the same side. Pleural fluid is exudative. But patient is stable with hardly any respiratory symptoms.

**Question 5:** Which of the following is LEAST LIKELY cause for pleural effusion in this patient?

1. Malignant pleural effusion
2. Pneumonia with effusion
3. Leaking mediastinal cyst
4. Hemotherax following the trauma
5. Congestive cardiac failure

**Answer:** 5 Patient had no cardiac symptoms. Physical examination did not reveal any signs of congestive cardiac failure. Chest x-ray also does not show any features of suggestive of congestive cardiac failure.

**Question 6:** What is the next investigation?

1. Chest x-ray left lateral view
2. Repeat USG left hemithorax
3. CECT thorax
4. Bronchoscopy
5. Thoracoscopy

**Answer:** 3. CECT will help to detect the intra thoracic lesions which are not visible in the chest x-ray and USG.
CT scan findings

Well circumscribed spherical lesion seen on the left side with moderate pleural effusion on the same side. Collapsed lung margins are clearly visible. No mediastinal lymph nodes. No pleural nodules or deposits.

Final diagnosis: Cystic mediastinal lesion with left sided moderate pleural effusion.

What is the cause for pleural effusion?

Initial chest x ray showed a circumscribed lesion on the left side and patient was not having any chest symptoms. On further enquiry patient revealed that thoracic fine needle aspiration was attempted in the peripheral health care centre after the first chest x ray. Only 5 ml fluid was obtained. After the attempted aspiration, fluid from the cyst must have leaked out into the pleural cavity leading to effusion.

Question 7: Which of the following is NOT a cystic lesion in the mediastinum?

1. Cystic thymoma
2. Bronchogenic cyst
3. Esophageal duplication cyst
4. Neurenteric cyst
5. Pericardial cyst

Answer 1. Cystic thymoma is cyst like lesion, not a true cystic lesion.

What are the cystic lesions in the mediastinum? Cystic lesions can be congenital, infectious, neoplastic lesions or cyst like lesions.

Congenital foregut cysts -Bronchogenic cysts, esophageal duplication cysts, and Neurenteric cysts

Congenital or acquired cystic lesions - Pericardial cyst, thymic cysts

Cyst like lesions - Meningocele, Mature cystic teratoma, Lymphangioma, Nerve sheath tumors like cystic schwannoma, Cystic thymoma, Mediastinal pancreatic pseudocyst, Mediastinal abscess, Mediastinal angiomatosis, Mediastinal hydatid cyst, Cardiac hydatid cyst, Mediastinal hematoma, Thoracic duct cyst, Cystic degeneration of solid tumors, Mediastinal lymphocele, Hemangioma

Question 8: What is the definitive treatment for this patient?

1. Intercostal tube drain
2. Thoracoscopy and drainage
3. Repeated pleural aspiration
4. Thoracotomy and cyst excision
5. Transbronchial aspiration from cyst
**Answer** 4. Cystic lesion in mediastinum is a benign lesion. Hence if the patient is fit for surgery, best option is surgical excision. This patient has pleural effusion in addition to the cyst. Hence he was taken up for surgery. Cyst excision and decortication was done.

Thanks to our Cardiothoracic Surgery Department and Dr. Madhav Kamath
Histopathological examination reported as infected bronchogenic cyst.

Patient's post operative period was uneventful. He was transferred back to Orthopaedic ward. Femur fracture fixation was also done. Post operative chest x ray showed resolution of empyema.

**Bronchogenic cyst**

This is a developmental anomaly of primitive foregut. Mediastinal bronchogenic cyst is the most common type. Intrapulmonary bronchogenic cysts are rare. Most common site is posterior to carina. It is more common in males than in females. Majority are asymptomatic. Most often symptoms are due to compression of adjacent structures/infection. Treatment is by elective surgical resection.

**Take home message**

Proper evaluation should be done to confirm the diagnosis in all patients. Most often CECT is helpful in presumptive diagnosis of cystic lesions of the Mediastinum. Cystic and benign lesions of the Mediastinum should be treated by surgical excision. Cystic intra thoracic lesions should not be aspirated as it may leak leading to complications.

**References**

An unusual cause of chest pain in a middle aged female

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History. A 48 year old female was admitted with left sided dull aching chest pain, dry cough and low grade intermittent fever since 1 month. Chest pain was insidious in onset, gradually increasing in severity. There was no radiation of pain or referred pain. Pain was not aggravated on deep breathing, coughing or exertion. Pain was not associated with sweating, palpitations or with food intake. No history of breathlessness. No preceding upper respiratory symptoms. No other respiratory or cardiac symptoms. No history of trauma to chest. No GI symptoms. No history of recurrent respiratory tract infections in the past. No history of Pulmonary TB or contact with TB cases in the past. No history of premorbid lung or cardiac disease. Since last 3 years she was on Telmisartan 20mg OD for systemic hypertension. No past history Diabetes, Ischemic heart disease or Bronchial asthma.

Question 1. What is the MOST LIKELY diagnosis from the history?
1. Lung abscess
2. Pulmonary TB
3. Pleural effusion
4. Pneumonia
5. Pneumothorax

Answer 2. Most of her symptoms fit into pulmonary TB. She has no symptoms of lung abscess like high fever, purulent sputum. In the absence of breathlessness pleural effusion and pneumothorax can't be suspected clinically. One month of low grade fever, dry cough are not features of pneumonia. Pneumonia usually presents with acute onset of high grade fever, pleuritic chest pain, sometimes with dyspnea and sputum.

Physical findings
She was moderately built and nourished. BMI was 25.3 Kg/m². General physical examination was unremarkable. Vitals were normal. Spo2- 97% at room air. JVP was not elevated. Upper respiratory tract examination was normal.

Respiratory system:
Impaired note on percussion in left suprascapular area. Intensity of breath sound was decreased in left suprascapular area. No added sounds. Vocal resonance was reduced in left suprascapular area

Other system examination - Normal
**Question 2.** What is the MOST LIKELY diagnosis?

1. Collapse left upper lobe
2. Left upper lobe pneumonia
3. Left upper lobe mass
4. Encysted pleural effusion
5. Small pneumothorax

**Answer** 3. In an ambulant person pleural effusion does not get encysted in the upper part of the hemithorax.

**Investigations**

Chest x-ray PA view and left lateral was done

Well defined round homogenous opacity noted in left upper and mid zone with clear and smooth margins and with normal surrounding lung parenchyma, lesion located in apico posterior segment of left upper lobe.

**Question 3.** Which of the following is NOT a radiological feature suggestive of benign lesion?

1. Well circumscribed
2. Smooth margins
3. Satellite lesions
4. Polygonal shape
5. Central calcification

**Answer** 3. Presence of satellite lesions is suggestive of malignancy.

**Question 4.** Which of the following is NOT a radiological feature suggestive of malignant lesion?

1. Ill defined margins
2. Bony or adjacent structure invasion
3. Eccentric calcification
4. Diffuse calcification
5. Irregular margins

**Answer** 4. Diffuse calcification is suggestive of benign lesion
**Question 5.** Which is the radiological finding favoring encysted pleural effusion in the above x-ray?

1. Unusual location(encysted effusions are peripherally located)
2. No blunting of costophrenic and cardiophrenic angles
3. Acute angle of the margins of the lesion with the chest wall
4. In lateral view, most of the shadow will lie behind the imaginary line of interlobar fissure
5. Homogenous dense opacity

**Answer 5.** Any pleural effusion whether encysted or will lead to homogenous dense opacity.

Other radiological characteristics of encysted pleural effusion

- Peripheral location
- Concave edges
- Sharp inner edges with indistinct outer edge
- Obtuse angle with the chest wall

**Question 6.** What are the cystic lesions in the lung which may mimic encysted effusion?

**Answer**

- Hydatid cyst
- Bronchogenic cysts
- Mediastinal neuroenteric cysts
- Pericardial cyst
- Thymic cyst
- Lymphangioma

**Further investigations**

- Routine blood investigations were normal
- ECG- Normal

USG Abdomen and Pelvis was done to look for any cystic lesions in the Liver - No sonological abnormalities detected

**Question 6.** What is the NEXT investigation?

1. CECT of thorax
2. Ultrasound left hemithorax
3. Pleural aspiration
4. Thoracoscopy
5. Bronchoscopy

**Answer 2.** In any patient with pleural effusion it is ideal to evaluate with USG before attempting pleural fluid aspiration.
USG showed loculated collection of fluid in left pleural space measuring 6.4x4.8 cm in scapular and paraspinal region with few thin septations noted within. But clinical and radiological signs were not in favor of effusion. Hence CECT thorax was done.

**CECT Chest**

Thin walled cystic lesion noted in the apical region of left upper lobe with no enhancement on post contrast study. Lesion is making acute angle with underlying pleura, abutting aorta medially, pleura and ribs posteriorly, inferiorly reaching up to the hilum, measuring 5.7x4x4.2 cm.

**Impression**

Cystic lesion filled with fluid in left upper lobe suggestive of Intra Pulmonary Bronchogenic cyst

**Question 7.** What is the treatment of choice for this patient?
1. CT guided aspiration
2. Observation
3. Antibiotic and analgesics
4. EBUS guided aspiration
5. Complete surgical excision

**Answer** 5. Treatment of choice for any cystic intra thoracic lesion is surgical excision. But patient and relatives refused for surgery even after detailed explanation and counseling.

**Question 8.** What is the alternative for surgery?
CT or USG guided aspiration. Aspiration is usually indicated in patients who are unfit for surgery. There are few case reports with successful outcomes with aspiration in patients who were unfit or unwilling for surgery.

**Question 9.** Which of the following is NOT a drawback of aspiration of a cystic lesion?
1. High chances of recurrence
2. Leakage during aspiration
3. Malignant transformation
4. Infection of the cyst
5. Rupture of the cyst
Answer  3. Long standing cystic lesion may undergo malignant transformation due to changes in the cyst wall and epithelium. But aspiration does not predispose to malignant transformation.

Under USG guidance about 50 ml of serous fluid could be aspirated and the fluid was sent for investigations.

**Pleural fluid analysis report**

- Grams stain - No cells/organisms
- Culture and sensitivity - No growth AFB
- Smear - No AFB seen
- Cytology - No malignant cells. Lymphocyte 68%.
- ADA - 05 U/mL

Repeat CXR after aspiration

There was no improvement in the radiological lesion. Patient had persistent symptoms of low grade fever, dull aching chest pain. Hence surgery was planned. This time we could convince the patient and family for surgical excision. Pre operative bronchoscopy and spirometry were done. Both were normal.

Video Assisted thoracoscopic surgical (VATS) cyst excision was done and the cyst was sent for histopathological examination. Patient had uneventful recovery, was discharged 3 days after surgery.

Chest x-ray 2 weeks after surgery
Histopathology report

Features are of Infected Bronchogenic cyst

Microscopy:
- The thick cyst wall is lined by fibrinous material and with denuded epithelium

Microscopy:
- Granulation tissue with thick walled blood vessels

Microscopy:
- Chronic inflammatory infiltrate with hyaline change is seen
  - Plasma cell
  - Lymphocytes
  - Hyaline change with myofibroblast

Final diagnosis. Left upper lobe intra pulmonary infected bronchogenic cyst

Question 10. Which is WRONG statement regarding bronchogenic cyst?
1. Congenital anomaly of foregut diverticulum
2. Intrapulmonary bronchogenic cyst is rare
3. Symptoms indicate malignant transformation
4. Majority are asymptomatic
5. Seen as a dense homogenous opacity in chest x-ray
Answer 3. Malignant transformation is rare. Most of the symptoms are due to pressure effect or rupture of the cyst

Bronchogenic cysts are congenital anomalies of the bronchial tree usually found in the mediastinum, 15-20% occurs in lung parenchyma. During embryologic development, a ventral foregut diverticulum gives rise to the respiratory system. Abnormal budding of the resultant bronchial tree results in a bronchogenic cyst. Bronchogenic cysts which are formed early in respiratory system development localize to the mediastinum. Bronchogenic cysts that form later in respiratory system development localize to the lung parenchyma (i.e. - intraparenchymal bronchogenic cyst). Histologically, bronchogenic cysts consist of ciliated columnar epithelium cells surrounded by bronchial cartilage, smooth muscle, connective tissue, and bronchial glands. They are generally asymptomatic, and often incidentally diagnosed. When symptomatic, clinical presentations include chest pain, dyspnoea, wheezing, and cough. On imaging, intraparenchymal bronchogenic cyst appears typically as a well circumscribed oval or round mass. When the attenuation is clearly fluid, the diagnosis of a bronchogenic cyst is fairly straight forward. When the fluid is dense (hemorrhagic/proteinaceous), distinction of a cyst versus a solid lung nodule may prove challenging.

Complications of bronchogenic cyst

Increase in the size may lead to pressure effect and airway compression leading to collapse of a part of lung, recurrent infection, retention of secretions, respiratory distress and stridor. Rupture can lead to recurrent infections, hemoptysis, fistula formation and opening of cyst wall into pericardial or pleural space leading to effusion. Malignant transformation is rare.

Complete surgical excision is the preferred therapeutic option due to the risk of development of complications and recurrence

Learning points

• Intra pulmonary bronchogenic cyst should be considered as one of the differential diagnosis for intra thoracic tumors, cystic lesion and encysted pleural effusion
• Complete surgical excision is recommended to prevent the chances of recurrence and potential complications
References:
Atypical chest x-ray in a common Lung disease

Authors
Dr Vishnu Sharma, M
Dr. V. Viswambhar
Dr. Harsha. D.S.

History
A 65-year-old male, known COPD on treatment was admitted with exacerbation of breathlessness. His dyspnea gradually increased since last 3 months from grade 2 to grade 3 MMRC. He had fever, cough with scanty mucopurulent sputum since last 3 months. Fever was low grade, intermittent, mostly in the evening. No chest pain/hemoptysis. No change in voice. No cardiac symptoms. No orthopnea/PND / palpitations. No past history of PTB or bronchiectasis. No history of DM/HT/ Ischemic heart disease. No history of any other significant illness in the past. He was on regular inhaled medication for COPD with a combination of LAMA + LABA. He had not received any systemic steroids in last 3 months. He was not on any other medications. He had stopped smoking 5 years back. His smoking index was 480. No other addictions. He was a retired bank employee.

Question 1. Which of the following is NOT included in the definition of AECOPD as per GOLD guidelines?
1. Increase in medication requirement
2. Increase in sputum production
3. Increase in sputum purulence
4. Recent onset of fever
5. Increase in dyspnea
Answer – 4.

Question 2. Which of the following is the MOST COMMON cause for AECOPD?
1. Bacterial infections
2. Viral infections
3. Exposure to pollution
4. Pneumonia
5. Psychological stress
Answer – 1.

Question 3. Which is the MOST COMMON non infective cause for exacerbation of dyspnea in COPD?
1. Worsening of cardiac co morbidity
2. Pneumothorax
3. Pleural effusion
4. Bronchogenic carcinoma
5. Pulmonary embolism
Answer -1. Most common causes include LV dysfunction/ Arrhythmia/IHD. Other causes are Exposure to noxious fumes/irritants, GERD/Stress/Anemia, Metabolic acidosis – Diabetic ketoacidosis, Renal dysfunction

Physical findings General physical examination was unremarkable except for tachypnea and tachycardia. Respiratory rate was 26/minute, Heart rate –116/minute, regular. JVP was not raised. No pedal edema. Spo2 was 92% with room air.
Respiratory system examination revealed emphysematous chest with bilateral reduced intensity of breath sounds. Few scattered crepitations were heard all over the chest. No ronchi. Other systemic examination was normal.

**Investigations**

Hb 14.8 g/dL  
TC - 17,800/mm³, Neutrophils-76%. Lymphocytes-21%. Eosinophils-3%.  
ESR 78 mm/1"hr  
FBS 102 mg/dL. HbA1c – 5.6%. Liver function, Renal function tests normal.  
HIV serology –Negative

**Chest x–ray**

Bilateral non homogenous opacities more in the lower zones

**Question 4.** Which of the following is **LEAST LIKELY** diagnosis in this patient?  
1. Bronco alveolar cell carcinoma  
2. Bronchopneumonia  
3. Pulmonary TB  
4. Interstitial lung disease  
5. Cardiogenic pulmonary edema

**Answer** – 5. He had no cardiac symptoms. Cardiac examination was normal. Chest x–ray does not show any cardiomegaly or other features suggestive of cardiogenic pulmonary edema.

**Question 5.** What is the next investigation?  
1. HRCT thorax  
2. Bronchoscopy  
3. Sputum examination  
4. CECT thorax  
5. USG thorax

**Answer** – 3. Investigations should be done in a proper sequential order starting from basic ones. If basic investigation establishes definitive diagnosis further investigations may not be required.

**Sputum examination**

Gram stain– PMNL ++++  
Gram positive cocci in pairs  
Culture – No growth  
AFB Smear 3+

**Diagnosis**

COPD with smear positive pulmonary TB, new case
**Question 6.** Which of the following is a **WRONG** statement?

1. COPD patients are at higher risk of developing pulmonary TB
2. COPD is a common co morbidity in patients with TB
3. Pulmonary TB is not a risk factor for development of obstructive airway disease.
4. Pulmonary TB increases frequency of exacerbations in patients with COPD
5. COPD alters the clinical and radiological presentation of pulmonary TB

**Answer** – 3. Some patients develop post tubercular obstructive airway disease.

**Question 7.** Which of the following condition is the **MOST COMMON** cause for lower lung field TB?

1) Immunosuppression
2) Underlying chronic lung disease
3) Old age
4) Diabetes mellitus
5) COPD

**Answer** – 4.

**Question 8.** What some of the atypical chest x-ray in Pulmonary TB?

**Answer**

1) Lower lung field TB
2) Thick walled cavity
3) Cavity with air fluid level
4) Cavities in mid/lower zones
5) Normal chest x-ray with endobronchial TB
6) Mediastinal adenopathy with/without Parenchymal lesion

Sputum AFB smear examination should be done in all patients with respiratory symptoms/radiological lesions.

**Question 9.** Which is a **WRONG** statement regarding lower lung field Tuberculosis?

1. More common in patients with underlying immunosuppression
2. May mimic bronchiectasis radiologically
3. Diagnosis is often delayed
4. Cavitory lesion is common
5. Bronchoscopy may be helpful in diagnosis

**Answer** – 4. Cavity formation is not common in lower lung field Tuberculosis. Hence it is often mistaken for pneumonia, bronchiectasis, and lung cancer in chest x-ray. When sputum AFB smear is negative bronchoscopy may help to establish the diagnosis.

**Question 10.** Which of the following **DOES NOT** predispose to atypical clinical and radiological features in pulmonary tuberculosis?

1. Old age
2. Immunosuppression
3. Chronic lung disease
4. Chronic liver disease
5. Endemic area

**Answer** – 5. Atypical manifestations are more in non endemic areas.
**Question 11.** Which of the following is a **WRONG** statement regarding relying on chest x–ray for diagnosis of pulmonary TB?

1. Useful in detecting co existing lung diseases
2. Useful in detecting extent of lesion
3. May lead to over diagnosis
4. Does not lead to under diagnosis
5. Useful in detecting smear negative cases

**Answer** – 4. Atypical manifestations in the chest x-ray may lead to under diagnosis in up to 20% of active pulmonary TB cases. Chest x-ray is not useful to differentiate active and inactive pulmonary TB. Hence may lead to over diagnosis in up to 30% which may be healed TB or other diseases which may mimic TB.

This patient was started on ATT and treatment for COPD was continued. He improved and was discharged in a stable condition after 10 days. He was cured after 6 months of ATT.

**Take home message**

Atypical manifestations are not uncommon in tuberculosis. Knowledge about the predisposing conditions and atypical manifestations is essential for early diagnosis and management.

**References**

Benign or Malignant

Authors
Dr. Vishnu Sharma. M
Dr. Basavaraj. Sangolli

History
A 36 years old male, manual laborer presented with right sided chest pain since 6 months. Pain was in right mammary area, dull aching type, gradually progressive. No radiation of pain or referred pain. No aggravating or relieving factors. He had cough with scanty mucoid expectoration since one month. No history of breathlessness, hemoptysis, change in voice, fever, weight loss, dysphagia. No history of loss of appetite or loss of weight. No other illness in the past. He was a current smoker with smoking index 160. No other addictions. He took over the counter analgesics with partial relief, but was never evaluated before coming to our hospital.

Question 1 What is the most likely diagnosis?
1. Pulmonary tuberculosis
2. Pleural effusion
3. Intra thoracic tumor
4. Empyema
5. Atypical pneumonia

Answer – 3. He had no other respiratory symptoms suggestive of TB, or any fever, weight loss, anorexia to suspect pulmonary TB. He has no breathlessness to suspect pleural effusion. No systemic symptoms like fever to suspect empyema. Both empyema and atypical pneumonia are acute processes where history will be for a few days. Hence predominant symptom of chest pain with occasional cough for 6 months in this patient is most likely to be due to intrathoracic tumor.

Physical findings
He was moderately built and nourished. General physical examination was unremarkable. Upper respiratory tract examination was normal. Respiratory system examination revealed impaired note on percussion with reduced intensity of breath sounds in right mammary area. No added sounds. Other systemic examination was normal.

Investigations
Question 2 What is the next investigation in this patient?
1. ECG
2. Chest x-ray
3. USG chest
4. Sputum AFB smear
5. Bronchoscopy

Answer – 2. Since intra thoracic tumor is suspected clinically, chest x-ray is the next step in evaluation.

Chest x-ray Well defined homogenous opacity noted in right mid and lower zones in perihilar region with broad base towards mediastinum and obscuring right heart border and right hilum.

Question 3 Which of the following is NOT a radiological feature of benign lesion?
1. Smooth well defined borders
2. Presence of diffuse calcification
3. Large size
4. Stable over a period of 2 years
5. Polygonal shape
**Answer** – 3. Benign lesions are usually small, less than 3cm. Bigger the size, greater the chances of malignancy.

**Question 4.** Which of the following is **NOT** a radiological sign of malignancy?

1. Speculated margins
2. Involvement of surrounding structures
3. Contrast enhancement
4. Polygonal shape and a three-dimensional ratio > 1.78
5. Corona radiata sign

**Answer** – 4. This feature is suggestive of benign lesion.

**Question 5.** Which of the following radiological feature is almost a sure radiological sign of malignancy?

1. Surrounding infiltrates
2. Erosion of adjacent bone
3. Ill defined borders
4. Associated mediastinal adenopathy
5. Associated pleural effusion

**Answer** - 2

His basic blood reports, ECG, 2 D ECHO were normal. Sputum AFB smear was negative.

**Question** -6. What is the next step in evaluation?

1. HRCT thorax
2. CECT thorax
3. CT guided biopsy
4. Bronchoscopy
5. Thoracoscopy

**Answer** – 2. Chest x-ray is suggestive of a mass lesion Hence CECT should be done. Further investigations will depend on the CT report.

**CECT report**

Cystic lesion seen in the anterior mediastinum, on right side with fat density, solid component and peripheral calcification. Multiple mediastinal and hilar lymph nodes were seen. Nodular lesions were seen in both lungs and both adrenal glands suggestive of metastasis.

**Question 7.** Which type of calcification is **LEAST LIKELY** in a benign lesion?

1. Diffuse
2. Central
3. Laminar
4. Concentric
5. Stippled

**Answer** – 5. Stippled and eccentric calcifications are more common in malignant lesion.

Bronchoscopy was done which showed left upper and lower lobe bronchus hyperemia, with mucosal thickening and narrowing. No endobronchial lesion. Bronchoscopic brushing and bronchial washings did not reveal any malignant cells. Bronchoscopic biopsy taken from the hyperemic mucosa did not show any evidence of malignancy. Hence CT guided biopsy was done.
Histopathology report

Cells show mild to moderate pleomorphism, hyper chromatic nuclei, condensed chromatin, few with distinct nuclei and having vacuolated to eosinophilic cytoplasm, admixed with large areas of necrosis – Moderately differentiated Adenocarcinoma.

Final diagnosis

Moderately differentiated Adenocarcinoma of right lung with lung to lung secondaries and bilateral adrenal secondaries

Question 8. Which of the following is NOT a common site for secondaries in bronchogenic carcinoma?

1. Skin
2. Bones
3. Adrenal gland
4. Liver
5. Brain

Answer – 1.

Question 9. Which of the following is a WRONG statement regarding bronchogenic carcinoma?

1. Intra thoracic metastasis is M1a
2. Prognosis is worst in M1c
3. Metastasis to brain is more common in small cell carcinoma
4. Metastasis is more common in Adenocarcinoma
5. Bilateral adrenal metastasis indicates poor prognosis

Answer – 3. Metastasis to brain occurs in up to 20% of bronchogenic carcinomas, has no predilection to any cell type.

Discussion

The clinical spectrum of mediastinal masses can range from being asymptomatic to producing compressive symptoms. Many of these masses have similar imaging appearances. Clinical history, anatomical position and imaging interpretation allow correct diagnosis in many cases.

Adenocarcinoma of lung is a form of non-small cell lung cancer. Lung adenocarcinomas usually peripheral lesions. Early signs and symptoms of lung adenocarcinoma may include fatigue, mild shortness of breath, or pain in back, shoulder, or chest. Cough and hemoptysis may not be present initially because of peripherally situated lesion. Many people diagnosed with adenocarcinoma of the lungs have never smoked. Treatment includes Surgical resection, Radio therapy and chemo therapy.
References
Cavity in the lung with skin lesion

Dr. Vishnu Sharma M.
Dr. Veena H.N.
Dr Sharath Babu S.

A 26-year-old female was referred to us from a dermatologist for evaluation of chronic cough. She first visited dermatologist for painful skin lesion around the left knee since 8 weeks. The skin lesion was diagnosed as erythema nodosum. She was evaluated by the dermatologist and no definitive cause was found for erythema nodosum. She was given symptomatic treatment with NSAIDS without any relief. She was not on any oral steroids.

She had dry cough since last 3 months. There was no history of preceding sore throat, fever, or any change in voice. No other respiratory symptoms or GI symptoms. No fever, weight loss or any other systemic symptoms. Her bowel and bladder habits were normal. No history of tuberculosis or contact with TB. She was not on any medications or on any oral contraceptive pills. She was married, had one-year-old child. Her menstrual history was normal and menstrual cycles were regular.

**Question 1.** Which is a WRONG statement regarding erythema nodosum?

1. More common in women
2. Most common site is anterior surface of the lower limbs
3. Majority resolve spontaneously within 2–8 weeks
4. Usually heals with a scar
5. More common in 20 to 40-year age group

**Answer** – 4. Erythema nodosum does not leave any scar.

**Question 2.** Which of the following is the MOST common cause for erythema nodosum?

1. Sarcoidosis
2. Infections
3. Drugs
4. Pregnancy
5. Inflammatory bowel disease

**Answer** – 2. Most common cause is preceding streptococcal sore throat (28 to 48 percent). Usually the streptococcal infection precedes 2-3 weeks skin manifestations.

**Causes of Erythema Nodosum**

- Idiopathic (up to 55 percent)
- Sarcoidosis (11 to 25 percent) usually with bilateral hilar adenopathy
- Drugs (3 to 10 percent): antibiotics (e.g., sulfonamides, amoxicillin), oral contraceptives
- Pregnancy (2 to 5 percent)
- Enteropathies (1 to 4 percent): regional enteritis, ulcerative colitis
- Other infections include Yersinia spp. (in Europe), mycoplasma, chlamydia, histoplasmosis, coccidioidomycosis, mycobacteria, viral infections, amoebiasis, and giardiasis.
- Vasculitis, paraneoplastic symptom in lymphoma and leukemia.

**Physical examination**

She was moderately built and nourished. She had multiple rounded purplish nodules on the extensor surface of the left knee. No joint swelling. Examination of respiratory system and other systemic examination did not reveal any abnormality.
**Question 3.** Which of the following is LEAST LIKELY cause for her symptoms?

1. Sarcoidosis
2. Pulmonary tuberculosis
3. Preceding streptococcal infection
4. Vasculitis
5. Inflammatory bowel disease

**Answer** – 5. Lung involvement or respiratory symptom like cough is not a feature of inflammatory bowel disease. In all the other conditions lung involvement and respiratory symptoms can occur.

**Question 4.** What is the next investigation?

1. Chest x-ray
2. Throat swab for culture for streptococcus pyogenes
3. Peripheral smear
4. ASO titer
5. CT scan thorax

**Answer** – 1. Since the patient has chronic cough next investigation is chest x-ray.
   Chest x-ray PA view showed cavity in the right upper zone with few surrounding infiltrates. Minimal mediastinal widening was seen.

**Question 5.** Which of the following is the MOST COMMON cause for cavity in lung?

1. Sarcoidosis
2. Pulmonary TB
3. Histoplasmosis
4. Klebsiella pneumonia
5. Staphylococcal pneumonia

**Answer** – 2. Worldwide the most common cause for cavity in lung is infection, of which tuberculosis is the most common cause.
   Her ESR was 72mm 1st hour. All other blood tests including CBC, Renal function, Liver function, Blood sugar, ASO titer were normal. ELISA for HIV was negative.

**Question 6.** Löfgren syndrome is seen in ---

1. Lymphoma
2. Tuberculosis
3. Sarcoidosis
4. Coccidioidomycosis
5. Histoplasmosis

**Answer** – 3. The triad of symptoms namely erythema nodosum, arthritis and hilar lymphadenopathy seen in acute form of sarcoidosis is known as Löfgren syndrome

**Question 7.** What is the next investigation?

1. CT scan thorax
2. Sputum for AFB smear  
3. Sputum culture and sensitivity  
4. Bronchoscopy  
5. Mantoux test  

**Answer** – 2. First investigation of choice in a suspected pulmonary TB is sputum AFB smear examination. Most of the patients with cavitory lesion will be sputum positive as bacillary load is high in them.  

Sputum AFB smear was positive and Gene X-pert showed MTB which was Rifampicin sensitive.  

**Final diagnosis**  
Erythema nodosum due to smear positive pulmonary Tuberculosis – New case, sensitive to Rifampicin.  

Patient was started on ATT under NTEP. Erythema nodosum and cough slowly regressed and subsided after 8 weeks of ATT. She completed 6 months of ATT and was declared cured. Repeat chest x-ray showed complete regression of the cavity.  

**Question 8.** Which of the following is a **WRONG** statement?  
1. Both pulmonary and extra pulmonary TB can cause erythema nodosum  
2. Erythema nodosum may manifest before the onset of symptoms of Tuberculosis  
3. Most of the patients with erythema nodosum with TB have highly positive Mantoux test.  
4. In areas where TB is endemic, empirical ATT may be given when Mantoux test is highly positive in a patient with erythema nodosum without any other cause.  
5. Morbidity and mortality is high in patients who present with erythema nodosum due to tuberculosis  

**Answer** – 5. Erythema nodosum due to TB is a mild self limiting disease which responds well and heals with ATT.  

**Discussion**  
Erythema nodosum may occur with primary tuberculosis or reactivation of disease and may even manifest before the development of a skin-test reaction to tuberculin. BCG vaccination and the tuberculin skin test have been associated with the development of erythema nodosum. Erythema nodosum may be found in some patients with highly positive reactions to the Mantoux skin test but no detectable focus of tubercular infection. All patients with erythema nodosum should be stratified by risk for tuberculosis exposure. Tuberculin skin test, chest radiography, and acid-fast bacilli sputum analysis should be done to exclude tuberculosis. Antitubercular therapy should be initiated for erythema nodosum in patients with positive Mantoux skin test reactions with or without a identified focus of infection in countries where TB is endemic. Several atypical mycobacteria have been associated with erythema nodosum, including Mycobacterium marinum, which may be found in swimming pools. Identification of these species is important because treatment should be tailored to the specific organism.
Take home message
Sarcoidosis, Pulmonary tuberculosis, Streptococcal infection and Vasculitis should be considered in the differential diagnosis in patients presenting with erythema nodosum and respiratory symptoms. Tuberculosis is the most common cause for cavity in the lung. In countries endemic for TB, empirical ATT may be considered when Mantoux test is highly positive in a patient with erythema nodosum without any other cause.

References

Images

Figure 1. Initial chest x-ray showing cavity in the right upper zone with few surrounding infiltrates.

Figure 2 Image showing erythema nodosum

Figure 3. Chest x-ray after completion of ATT. Radiological lesions have disappeared.
Chronic chest pain in an elderly woman

Authors
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Dr. Chandrik Babu. S.R.
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Manjunath M.

History.
A 70-year-old female was admitted with history of dull aching, dragging type of pain in the right lower chest and right hypochondrium since last 2 years. The pain was mild, never troubled her daily activities. Her pain used to increase whenever she lifted heavy weight. Hence she avoided lifting of weights since more than a year. Since last 10 days her pain slowly increased disturbing her daily activities. But there was no change in the character of pain or any other symptom. She attributed her sudden increase in pain to lifting of 10 kg weight 10 days back. This made her to seek medical help. The pain was constant. No other aggravating or relieving factors. No radiation of pain or referred pain. She had no other chest symptoms like cough, sputum, dyspnea, and change in voice, palpitations or syncope. She had no GI symptoms. No history of anorexia, weight loss. No past history of any respiratory illnesses. No past history GI symptoms like constipation, vomiting, diarrhea, GERD symptoms, abdominal distension or post prandial abdominal pain. No history of jaundice. No other significant illness in the past. No history of Diabetes mellitus or hypertension. She was seeking medical help for the first time for her chest pain when she came to our hospital.

Question 1. What is the most probable cause for her symptoms?
1. Musculoskeletal chest pain
2. Chronic liver disease
3. Slow growing intra thoracic tumor
4. Hepatocellular carcinoma
5. Aortic aneurysm

Answer – 3. Chronic pain may the only symptom in some slow growing intra thoracic tumors. Musculoskeletal pain usually won't last for such a long duration and will not be constant for 2 years without any change. She has no symptoms to suspect chronic liver disease. Hepatocellular carcinoma is a fast growing tumor where other symptoms will worsen very fast and usually won't last for 2 years without diagnosis or treatment. Pain in aortic aneurysm is usually left sided.

Physical examination
She was moderately built and nourished. BMI was 27.5 kg/m². General physical examination was normal. Vitals were normal. Respiratory system examination revealed reduced breath sounds over mammary area on the right side with impaired percussion note. No added sounds. Examination of abdomen did not reveal any abnormality.

Question 2. What is the MOST LIKELY diagnosis?
1. Right sided pleural effusion
2. Right lower lobe mass
3. Right lower lobe collapse
4. Right basal pleural thickening
5. Right diaphragmatic palsy

Answer – 2.

Investigations
Chest x-ray PA view was taken.
**Question 3.** What is the MOST LIKELY diagnosis from the chest x-ray?
1. Diaphragmatic hernia
2. Eventration of right dome of diaphragm
3. Paralysis of right dome of diaphragm
4. Mesothelioma of pleura
5. Encysted pleural effusion

**Answer** – 1.
Complete blood counts, Renal and Liver function tests, Blood sugar were normal. ECG, Echo normal

**Question 4.** What is the next investigation?
1. USG abdomen and thorax
2. Thoracoscopy
3. CECT thorax
4. Bronchoscopy
5. Fluoroscopy

**Answer** – Answer -3

**CECT report**
Retrosternal large fat density is seen on the right side. Linear and curvilinear densities inside fat density, arising from parasternal region of diaphragm consistent with omental blood vessels. Above features are consistent with diagnosis of Morgagni's Hernia.

**Question 5.** Which is a WRONG statement regarding Morgagni's Hernia.
1. Posterior in location
2. More often right-sided
3. Usually small in size
4. Rare compared to Bochdalek hernias
5. Low risk of prolapse

**Answer** – 1. It is anterior in location

**Question 6.** Which of the following is LEAST LIKELY symptom in Morgagni's Hernia?
1. Respiratory distress
2. Recurrent respiratory infections
3. Chest pain
4. Hemoptysis
5. Right hypochondriac pain

**Answer** – 4. Large hernia can lead to under development of lung or compression of lung leading to respiratory distress in the newborn. In children recurrent infection can be the presenting symptom due to pressure effect and distortion of bronchi leading to retention of secretions.

**Question 7.** Which of the following is the MOST COMMON content of Morgagni’s Hernia?
1. Omental fat
2. Transverse colon
3. Liver
4. Stomach
5. Small intestine

**Answer** – 1.

**Question 8.** Which of the following is a complication of Morgagni's hernia in adults?
1. Intestinal obstruction
2. Respiratory insufficiency
3. Intractable pain
4. Omental gangrene
5. Recurrent chest infections

Answer - 1.

**Question 9.** Which is a **WRONG** statement regarding congenital diaphragmatic hernia?
1. Bochdalek hernia is the most common type
2. Majority occur on the left side
3. May lead to pulmonary hypoplasia
4. May be associated with cardiac and GI anomalies
5. Prenatal USG is not useful in detection

**Answer** – 5. Prenatal assessment of lung to head ratio (LHR) and position of the liver by ultrasound is used to diagnose and predict the outcomes in congenital diaphragmatic hernia. Prenatal diagnosis improves the outcome by proper postnatal management.

**Question 10.** Which is a **WRONG** statement regarding congenital diaphragmatic hernia
1. Surgical repair is the treatment of choice
2. May be associated with Pulmonary arterial hypertension in the newborn
3. Presence of omentum in the hernial sac is associated with worst prognosis
4. Milder forms may be asymptomatic
5. Central hernia is rare

**Answer** – 3. Presence of liver in the hernial sac is associated with worst prognosis.

**Question 11.** Which of the following is **NOT** a radiological differential diagnosis for Morgagni Hernia?
1. Pleuro-pericardial cyst.
2. Mediastinal lipoma.
3. Thoracic wall tumors.
4. Diaphragm tumor.
5. Liver abscess

**Answer** – 5.

**Images**

**Figure 1. Chest x-ray**

![Chest x-ray Image]

**Figure 2**

![Second Chest x-ray Image]
Figure 3
CT level - just above the bifurcation of trachea
- shows herniation of fat density
- shows upper extent of herniation

Figure 4
CT showing linear and curvilinear densities consistent with omental blood vessels

Figure 5
CT level - lower sternum
- herniated portion almost covering half of anterior mediastinum

CT report

Discussion
Diaphragmatic hernia is a defect in the diaphragm through which abdominal contents enter into the thoracic cavity. The defect occurs due to failure of the fusion of septum transversum of the diaphragm and the costal arches.

Classification
Congenital Hernia and Acquired hernia

Acquired hernia
Hiatal hernia
Traumatic – Iatrogenic or Accidental trauma
Congenital diaphragmatic hernia - Bochdalek Hernia (70–75%), Morgagni hernia (23–28%), Central hernia (2-7%)
**Bochdalek Hernia**


**Morgagni hernia**

It is more common in females. Majority are asymptomatic in adult life as it is usually small in size. May be detected incidentally in chest radiography. Commonly present after the age of 50 years because of slow increase in the size of hernia with age. Obesity, increased intra abdominal pressure, laxity and weakness of muscles with age lead to increase in size of the hernia with age. Symptoms will depend on the size and content of the hernia. Vague discomfort or dull pain is the common symptom when the content is omentum. Constipation, diarrhea, abdominal distension, Postprandial pain are the symptoms when the content is bowel. Colonic obstruction or Gastric volvulus can occur.

**Investigations**

Chest x-ray will show opacity on the lower zone most often on the right side. Contrast enhanced computed tomography will give a definitive diagnosis.

**Treatment**

Even asymptomatic cases should be treated surgically to prevent future fatal complications like volvulus and intestinal obstructions are associated with high mortality. Transabdominal approach is ideal. Thoracoscopic or laparoscopic surgery can be done. Asymptomatic cases if not treated for some reason like advanced age, patients should be followed up properly.

We advised surgery but the patient and relatives refused any intervention. She was treated symptomatically with bed rest and analgesics. She improved in 5 days. Her pain subsided. She was advised regular follow up.

**References**

**Chronic cough with change in voice**

Dr. Vishnu Sharma  
Dr Vinaya kumar Jogondra  
Dr Suyog S.Y.  
Dr. Adarsh N.

**History.** 65-year-old male was admitted with history of cough with expectoration, fever since 4 weeks and change in voice since 2 weeks. Cough was insidious in onset, gradually increasing in severity, more at night. He had mucoid sputum about 5 to 10 ml per day. No aggravating or relieving factors for his cough and sputum. Fever was low grade, intermittent, not associated with rigor, chills or sweating. He noticed change in voice since 2 weeks. He also had dysphagia and odinophagia since 2 weeks which gradually increased in severity. He was able to swallow semisolids on admission. He had decreased appetite and weight loss since 3 weeks. He had a swelling in right side of neck since birth. It gradually increased in size, attained present at the age of 35 years. It has not increased in size since then. There was no pain. No recent increase in the size of the swelling. No history of throat pain, stridor, hemoptysis, chest pain, breathlessness, wheezing. No other GI symptoms. No cardiac or other systemic symptoms. He had no neurological symptoms. No past history of TB, or contact with TB, Diabetes, Hypertension or any other major illness in the past. He stopped smoking 35 years back. Smoking index was 100. He stopped chewing tobacco 1 year back. No other addictions or substance abuse. He was not on any regular medications. He was a manual agricultural laborer, stopped working since last one month. No history of exposure to any pets, birds, any agricultural products or pesticides prior to the onset of symptoms.

**Question1.** Which of the following is **LEAST LIKELY** cause for his symptoms?

1. Carcinoma in the posterior part of tongue  
2. Laryngeal carcinoma  
3. Secondaries from swelling in the neck  
4. Esophageal carcinoma  
5. Oropharyngeal cancer

**Answer 3.** Neck swelling was there since birth and no recent change in the swelling. Hence malignancy is least likely. Esophageal carcinoma can lead to respiratory symptoms due to aspiration.

**Physical Examination:** He was moderately built and poorly nourished. BMI was – 16.6kg/m². He had grade 2 clubbing. No palpable cervical lymph nodes. SPO2 was 98% at room air. Respiratory rate and other vitals were normal. Swelling in the in the nape of the neck on right side 10 x 10 cm. It was soft in consistency, non-tender, fluctuant, mobile, sagging over the clavicle. Skin over the swelling was pinchable. No transillumination or cough impulse. No movement with digglution.

Dental hygiene was poor with caries teeth on both sides. No ulcers or mucosal changes or any lesion suspicious of malignancy on oral cavity examination. Tongue and posterior pharyngeal wall were normal. Upper respiratory tract examination did not reveal any abnormality.

Respiratory system examination revealed few crepitations in the right infra clavicular area. Other
**Question 2.** Which of the following is LEAST LIKELY cause for his symptoms?

1. Bronchogenic carcinoma left side
2. Laryngeal carcinoma
3. Esophageal carcinoma
4. Cervicofacial actinomycosis
5. Oropharyngeal Cancer

**Answer** 4. In cervicofacial actinomycosis lesion will be obvious on physical examination.

**Question 3** Which of the following is NOT a sign of malignant change in a long standing swelling?

1. Recent increase in the size
2. Recent onset of progressively increasing pain
3. Hard in consistency
4. No fixation to underlying structures
5. Irregular borders

**Answer** – 4. Fixation to underlying structures is a probable sign of malignancy

**Investigations**

TC - 12,300/mm³, ESR - 42 mm/hr.

Blood sugar level, Renal and Liver function tests were normal. Sputum for AFB smears two samples negative.

**Question 4** What is the next investigation?

1. Bronchoscopy
2. Indirect laryngoscopy
3. CT scan of neck and thorax
4. Upper GI endoscopy
5. Barium swallow

**Answer** - 2. Since the patient has significant throat symptoms local examination should be done. IDL showed edematous epiglottis with a fleshy growth at the tip of epiglottis. Aryepiglottic fold was also edematous and hyperemic with secretions seen around the fold. Biopsy was taken from the lesion.

Chest x-ray PA view was done which showed few infiltrate in the right upper zone. Chest x-ray also showed the soft tissue swelling with peripheral rim of calcification.

**Question 5.** Which is a WRONG statement regarding soft tissue shadow in chest x-ray?

1. Can mimic pneumothorax
2. Can mimic intra thoracic tumor
3. Physical examination will be useful
4. PA and Lateral view may be helpful
5. Normal soft tissues never cast a shadow in chest x ray.
**Answer** – 5. Nipple can cast a shadow in up to 10% chest x ray PA view. Skin folds can mimic pneumothorax on AP chest radiographs, particularly in elderly patients.

**Question 6.** Which of the following is the **BEST** investigation for evaluation of extent of soft tissue lesion?

1. Chest x ray
2. Physical examination
3. CT scan
4. MRI
5. Ultra sound

**Answer** – 4

Surgical opinion was sought for the neck swelling. Clinical diagnosis of cystic Lymphangioma was made.

CT scan thorax was done which showed infiltrates with tree in bud appearance in the right upper lobe.

**Question 7.** Which of the following is the **MOST COMMON** cause for tree in bud appearance?

1. Pulmonary Tuberculosis
2. Bronchiolitis
3. Sarcoidosis
4. Bronchiolectasis
5. Cystic fibrosis

**Answer** – 1. Sputum for Gene MTB was detected high, no Rifampicin resistance. Biopsy reported as tuberculous granuloma.

**Final diagnosis**

Pulmonary TB with epiglottic and aryepiglottic fold TB, Cystic Lymphangioma in the neck. Patient was treated with ATT under NTEP. His symptoms started reducing after 10 days and all symptoms subsided after 2 months of ATT. He took regular medication for 6 months and was declared cured. He was advised excision of the Cystic Lymphangioma. He refused surgery as he had no symptoms due to that lesion.

**Question 8** Which of the following is a **WRONG** statement regarding laryngeal TB?

1. Primary laryngeal TB is rare
2. Most often due to spread from the lungs through lymphatics
3. Has to be differentiated from laryngeal cancer
4. Primary laryngeal TB is due to direct invasion of the inhaled MTB
5. Epiglottis is often involved if it coexists with pulmonary TB

**Answer** – 2. Most often laryngeal TB is secondary to pulmonary TB. The disease usually spreads from lungs to larynx during coughing. Spread through lymphatics and blood stream to larynx is rare. Arytenoids, posterior commissure and Epiglottis are often involved if it coexists with pulmonary TB.
**Question 9.** Which of the following is a **WRONG** statement regarding laryngeal TB?

1. Most common symptom is hoarseness of voice
2. Can cause odinophagia
3. Stridor can occur
4. Immunosuppression and HIV infection are risk factors
5. Vocal cords are rarely affected

**Answer** – 5. Vocal cords are the most common site for involvement.

**Question 10.** Which of the following is a **WRONG** statement regarding laryngeal TB?

1. Smoking is a risk factor
2. Highly infectious if it is secondary to Pulmonary TB
3. Indirect laryngoscopic examination shows typical lesions
4. Majority respond well to Anti TB treatment
5. Surgery may be required if there is airway obstruction

**Answer** – 3. Laryngoscopic examination will show the lesions, but no lesion is diagnostic. Histopathology and sputum examination is required for definitive diagnosis. It has to be differentiated from malignancy and other inflammatory or infectious diseases of larynx.

**Learning points**

Laryngeal TB can present with change in voice, cough, and constitutional symptoms. It is not uncommon and is usually secondary to pulmonary TB. It is highly infectious. It has to be differentiated from other infectious, inflammatory and malignant lesions involving the larynx. Sputum examination and biopsy help to establish the diagnosis. Majority respond well to ATT. If there obstructive lesion in the larynx surgery may be required. Immunosuppression predisposes to development of laryngeal TB.

**Figure 1** - Soft tissue lesion in the right side of neck

**Figure 2** – Chest x-ray PA view showing few infiltrate in the right upper zone and soft tissue swelling with peripheral rim of calcification.
**Figure 3.** Indirect laryngoscopic examination showing edematous epiglottis with a fleshy growth at the tip of epiglottis. Aryepiglottic fold also edematous and hyperemic with secretions seen around the fold.

**Figure 4.** CT scan thorax showing infiltrates with tree in bud appearance in the right upper lobe.

**Figure 5.** Histopathology showing tubercular granuloma

**References**


**Cutaneous lesion with intra thoracic mass**

**Authors**
Dr Vishnu sharma  Dr Chandrik Babu S.R

**History.** A 38-year-old male presented with chest pain and pain both legs since 6 months, Cough since 3 months. Pain was on the left lower chest, dull aching in nature, no radiation or referred pain. No aggravating or reliving factors for pain. He had dull aching pain in the both lower limbs since 3 months. No history of trauma to the back or fall from height. No other neurological symptoms. Cough was insidious in onset, slowly increasing since past 3 months. He had scanty mucoid sputum and low grade intermittent fever since last 2 weeks. No other respiratory symptoms. He had no cardiac, GI symptoms or any other symptoms. He was a non smoker & non alcoholic. No other addictions or substance abuse. No other significant illness in the past.

**Question 1.** Which of the following is **LEAST LIKELY** in this patient?

1. Pulmonary and spinal TB
2. Intra thoracic tumor with spinal secondaries
3. Pulmonary and spinal secondaries from unknown primary
4. Systemic autoimmune disease
5. Chronic empyema

**Answer** 5.

**Physical findings**
He was moderately built and nourished. General examination showed features suggestive of neurofibromatosis type 1. His vital signs were normal

**Question 2.** Which is a **WRONG** statement regarding neurofibromatosis type 1?

1. Autosomal dominant disorder
2. Most common single-gene disorder in humans
3. Gene locus is long arm of chromosome 17
4. Half of all NF-1 cases are due to spontaneous mutations.
5. Easily diagnosed at birth by general examination

**Answer** – 5. In some individuals cutaneous manifestations become evident after 2 years of age. Hence diagnosis may not be evident at birth.

**Question 3.** Which of the following is **NOT** a diagnostic criterion for NF-1?

1. Presence of more than six café-au-lait spots in adults
2. One neurofibroma of any type
3. Freckling in the axillary or inguinal region
4. Optic glioma
5. Two or more Lisch nodules

**Answer** – 2. Two or more neurofibromas of any type or at least one plexiform neurofibroma is one of the diagnostic criterions. Any two criteria are required for diagnosis of NF 1. In addition to the above, other criteria include -Presence of more than six café-au-lait spots measuring at least 15 mm in diameter in adults or five café-au-lait spots of 5 mm in children, a distinctive bony lesion (anatomic dysplasia or sphenoid wing distortion), first-degree relative with NF-1 by the above criterion.

**Respiratory system examination** – No chest wall abnormality. No mediastinal shift. Impaired note on percussion with reduced intensity of breath sounds in left interscapular area. No added sounds. No chest wall tenderness. Neurological examination, spine and lower limbs were normal. Other systemic examination was normal.

**Question 4.** What is the MOST LIKELY diagnosis?

1. Left lung mass
2. Collapse left upper lobe
3. Encysted pleural effusion on left side
4. Consolidation left upper lobe
5. Fibrosis left upper lobe

**Answer - 1**

His routine blood reports were normal. Sputum examination did not show any organisms. Sputum AFB smear was negative.

**Chest x-ray**

Chest X-ray PA view: Homogeneous round shaped mass in the Left hemi-thorax extending from the Left upper zone up to the left mid zone.
Chest X-ray left lateral view: A rounded opacity in the posterior mediastinum extending from the T5 to T10 vertebral level.

**Question 5.** Which of the following is NOT an intra thoracic manifestation in patients with NF-1?

1. Cysts and bulla in the lower lobe
2. Pulmonary fibrosis
3. Increased incidence of lung cancer
4. Increased incidence of pulmonary hypertension
5. Increased incidence of schwannoma

**Answer – 1.** Cysts/bulla can occur in the lungs which predominantly involve the upper lobes. Some patients may develop kyphoscoliosis.
**Question 6.** Which of the following is the **MOST COMMON** posterior mediastinal tumour?

1. Parasympathetic ganglion tumors
2. Sympathetic chain tumor
3. Chondroma
4. Neurogenic tumor
5. Lymphoma

**Answer** – 4.

**Question 7.** What is the next investigation?

1. Bronchoscopy
2. Thoracoscopy
3. CECT thorax
4. CT guided biopsy
5. USG guided biopsy

**Answer** – 3.

**CECT thorax**

Well defined hypo dense mass lesion (11.3 x 8.1 cm) in the left paraspinal region with adjacent pleural thickening – Suggestive of neurofibroma. Multiple cutaneous nodules are seen suggestive of neurofibromatosis.

**Question 8.** Which is the best investigation for neurogenic tumours of posterior mediastinum?

1. CECT thorax
2. MRI thorax
3. PET CT scan
4. HRCT thorax with contrast
5. Thoracoscopy

**Answer** – 1.

**Question 9.** Which is **NOT** a radiological feature of mediastinal lesion?

1. Hilum overlay sign
2. No air bronchogram
3. Acute margin with the lung
4. Obliterated cardiophrenic angle
5. Obliterated retrosternal clear space

**Answer** – 3. Mediastinal lesion will lead to obtuse angle with the lung.

**Question 10.** Which of the following is not a radiological sign of benign lesion?

1. Smooth well defined borders
1. Large size
2. Presence of diffuse calcification
3. Stable over a period of 2 years
4. Polygonal shape

**Answer** – 2. Larger the size greater the chance of malignancy.

MRI of the thorax was asked for, as it was suspected to be a Neurofibroma after clinical correlation with the presence of multiple cutaneous lesions, to look for any extension / continuity with the Neuronal space.

**MRI Thorax report**

Multiple subcutaneous nodular lesions were seen all over the chest suggestive of neurofibromas. A large enhancing para spinal lesion on left side extending to D5/D6 Neural foramina suggestive of benign schwannoma.

CT guided Needle Biopsy of the mass was done. Histo-pathology reported as features are of a benign neural tumor, probably a neurofibroma - "Schwannoma".

**Question 11.** What is best modality of treatment for this patient?

1. Symptomatic treatment
2. Surgical excision
3. Radiotherapy
4. Chemotherapy
5. Radiofrequency ablation

**Answer** – 2. Since it is a benign tumor best option is surgical resection

This patient was operated. Excision of the tumor was done by open thoracotomy. Histopathology confirmed the diagnosis. He made uneventful recovery.

**Question 12.** Which of the following is a **WRONG** statement regarding mediastinal schwannoma

1. Malignant transformation can occur
2. Treatment for benign schwannoma is surgical excision
3. Presence of symptoms indicate malignant transformation
4. Most common dumbbell tumor of posterior mediastinum
5. May be associated with NF 1, NF2 or schwamnatosis

**Answer** – 3. Symptoms can occur due to pressure on adjacent structures even in benign lesions.

**Discussion**

Neurofibromatosis (NF) is a genetic neurological disorder that can affect the brain, spinal cord, nerves and skin. Neurofibromas grow along the body's nerves or on underneath the skin. Two distinct types include neurofibromatosis type 1 (NF1) and NF2.
NF1: Formerly known as von Recklinghausen's NF, is the more common of the types. It occurs in approximately 1 in 4,000 births.

NF2: Also referred to as bilateral acoustic NF, central NF or vestibular NF. It occurs less frequently - 1 in 40,000 births. NF may lead to developmental abnormalities and/or increased chances of having learning disabilities. A rare form of NF is schwannomatosis. Schwannomatosis is a rare form of NF that appears to affect around 1:40,000 individuals. Schwannomas are highly vascular nerve sheath tumors that arise from the neural crest–derived Schwann cells. People develop multiple Schwannomas on cranial, spinal and peripheral nerves--but they do not develop vestibular tumors.

Intrathoracic manifestations in NF
Most of them are asymptomatic; it can cause symptoms due to pressure on adjacent structures. These symptoms include cough, dyspnea, chest pain, neck swelling, Horner's syndrome, Superior vena cava syndrome and Features of myelopathy depending on the extent of compression of the adjacent structures.

Pulmonary manifestations in NF
Diffuse interstitial fibrosis: involving lower zone, cysts and bulla in the upper zone, Emphysema, secondary pulmonary arterial hypertension and cor pulmonale
CT typically reveals a solitary, smoothly rounded mass in the upper half of either paravertebral sulcus abutting the vertebra. MRI should be done to rule out intraspinal extension.

Management
Surgical management of schwannomatosis can be effective. When tumors are completely removed, pain often subsides -- although it may recur if new tumors form. There is no currently accepted medical treatment or drug for schwannomatosis.

Figure 1. Multiple skin lesions suggestive of NF 1
**Figure 2.** Chest x-ray PA and lateral view suggestive of posterior mediastinal mass

**Figure 3.** CT scan thorax suggestive posterior mediastinal mass

**Figure 5.** Gross specimen

**Figure 6.** Gross specimen – Cut surface
References


Goiter and Lung

Author-
Dr. Vishnu Sharma  Dr. Basavaraj Sangothi  Dr. Abdul Rahiman Erinhikath

A 63-year-old male was admitted with history of swelling on left side of neck since 2 months and change in voice since 2 weeks. The swelling was gradually increasing in size with dull aching pain. He had cough with scanty mucoid sputum since last 2 weeks. No history of breathlessness, chest pain, hemoptysis. No cardiac symptoms. No fever, weight loss, GI symptoms or other systemic symptoms. He was a non smoker, no history of any addiction or substance abuse. He was on oral hypoglycaemic medication for diabetes mellitus since last 7 years. His blood sugar was under control. He was working as electrician since last 38 years. No history of tuberculosis, Asthma or hypertension.

Question 1. Which of the following is LEAST LIKELY cause for his symptoms?
1. Bronchogenic carcinoma with cervical lymph node secondaries
2. Thyroid malignancy with recurrent laryngeal nerve involvement
3. Aortic aneurysm with left recurrent laryngeal nerve involvement
4. Carcinoma in oral cavity with cervical lymph node secondaries
5. Nasopharyngeal carcinoma with cervical lymph node secondaries


Physical findings. He was moderately built and nourished. He had a diffuse swelling in the neck on left side, size 8 x 5cm, moving with digglution, reaching up to the midline. It was hard in consistency with irregular surface, attached to the underlying structures. No separate cervical lymph nodes palpable. General physical examination did not reveal any other abnormality.

Figure 1: Neck swelling

Question 2. Which of the following clinical finding is highly suggestive of thyroid swelling?
1. Swelling in lower anterior part of the neck
2. Movement with digglution
3. Swelling present on both sides of neck
4. Symptoms suggestive of hypothyroidism
5. Symptoms suggestive of hyperthyroidism

Answer – 2. Neck swelling was clinically diagnosed as suspected malignant thyroid in this patient.

Question 3. Which of the following is a feature highly suggestive of thyroid malignancy?
1. Sudden increase in size
2. Pain in the swelling
3. Hoarseness of voice
4. Airway obstruction
5. Multiple hard cervical lymph nodes

Answer – 5. Increase in size and pain can occur due to bleeding in to the thyroid more so in toxic goiter. A large goiter can lead to pressure effect leading to Hoarseness of voice and Airway obstruction.
**Question 4.** Which of the following is **LEAST LIKELY** due to goiter?

1. SVC obstruction
2. Right recurrent laryngeal nerve palsy
3. Hemoptysis
4. Stridor
5. Tracheomalacia

**Answer** – 3. All the other can occur due to pressure effect.
Oral cavity was normal. Clinical examination of respiratory system and other systemic examination were normal.

**Question 5.** What is the next step in the evaluation in this patient?

1. Chest x-ray
2. CT scan thorax
3. Bronchoscopy
4. Indirect laryngoscopy
5. Iodine 131 scan

**Answer** – 4. Since the patient has hoarseness of voice indirect laryngoscopy is the next step in the evaluation.
IDL showed immobile left Vocal cord suggestive of left recurrent laryngeal nerve palsy.

**Question 6.** Which of the following is **MOST COMMON** cause for vocal cord paralysis?

1. Multiple sclerosis
2. Intra thoracic tumors
3. Infection
4. Idiopathic
5. Trauma

**Answer** – 2. Two most common causes for vocal cord paralysis include surgical complication and intra thoracic tumors

**Investigations**

Hb- 12.1 g/dl
TC- 12560 cells/cu mm
DC- N69 L16 E5.7
PLT- 308000
ESR- 61mm/1st hour
RBS- 173
LFT/RFT- WNL
HIV SEROLOGY- NEGATIVE
FBS- 194
BLOOD GROUP- B POS
HBA1C- 10.22
USG Abdomen- Normal

Chest x ray was done which showed nodular opacities in both the lower lobes.
**Question 7.** What is the next step in the evaluation in this patient?

1. FNAC from the thyroid swelling
2. USG neck
3. CECT thorax
4. Bronchoscopy
5. PET-CT

**Answer** – 2. Since thyroid malignancy with secondaries in the neck lymph nodes is suspected USG neck is the next investigation which should be followed CECT of neck and thorax and biopsy from the thyroid swelling.

**USG Neck** - Multiple hypo echoic nodules on bilateral thyroid lobes (28x18x30 mm), ill-defined hypo echoic area noted in deep cervical plane posterior to the left lobe of thyroid

**Figure 3.** CT scan thorax, axial section mediastinal window showing thyroid swelling on left side

**Figure 4.** CT scan thorax, axial section mediastinal window showing secondaries in lower lobe of both the lungs.

**Figure 5.** CT scan thorax axial section lung window showing secondaries in lower lobe of both lungs
CECT NECK AND CHEST
Enlarged left lobe of thyroid with multiple hypo dense nodules and retrosternal extension. Enlarged lymph nodes in level II, III, IV on left side. Multiple enhancing nodular lesions in bilateral lung fields suggestive of metastasis.

BRONCHOSCOPY
Left vocal cord palsy noted. No endobronchial lesion. Main carina- blunt and widened
Biopsy was done from the thyroid swelling reported as anaplastic carcinoma.

Figure 6. Histopathology of thyroid showing anaplastic carcinoma

FINAL DIAGNOSIS
Anaplastic carcinoma thyroid with multiple parenchymal secondaries and left vocal cord palsy with diabetes mellitus.

Question 8. Which of the following is a WRONG statement regarding head and neck cancer?
1. Lungs are most common site for distant metastasis
2. Metastasis in lungs from squamous cell carcinoma may cavitate
3. Solitary secondary in lung should be differentiated from primary bronchogenic carcinoma
4. Patients with advanced nodal disease have a high incidence of lung metastases
5. Chest x-ray if normal rules out lung metastasis

Answer - 5. Small secondaries may not be visible in chest x-ray. Hence a chest CECT may be required when metastasis is suspected.

Question 9. Which of the is a WRONG statement regarding goitre
1. Encircles trachea from all sides except posteriorly
2. Can cause tracheal compression
3. Displacement of the trachea to opposite side is a characteristic radiological feature
4. Cervicothoracic sign may be seen in substernal goitre
5. Recurrent laryngeal nerve involvement is common

Answer – 5.

Question 10. Which is a WRONG statement regarding intra thoracic secondaries?
1. Breast and ovaries are the common primary sites in females
2. Prostate is the most common site for primary in males
3. Endobronchial secondary may mimic bronchogenic carcinoma
4. Surgery can be considered in solitary secondary
5. More common in lower lobes

Answer – B. Secondaries from prostate is not so common compared to other primary sites in males. If the primary malignancy is treated, surgery can be considered in solitary secondary provided no other secondaries elsewhere.
Further management

Patient was referred to surgical oncology department for further management. In view of stage 4 cancer he was treated with chemo radiation.

Learning points

Thyroid swelling can compress the trachea leading to respiratory symptoms. Retrosternal goiter is a rare cause for SVC obstruction. Recurrent laryngeal nerve involvement in a thyroid swelling is highly suggestive of malignancy. Lungs are the most common site for distant secondaries in thyroid carcinoma.

References

Mediastinal widening

Authors
Dr. Vishnu sharma.M
DR. Mahshan.K.M
DR. Madhusudan. Y.

A 73-year-old male, non-smoker presented with history of occasional, non productive cough for 1 month. He had no history of breathlessness, haemoptysis, chest pain, change in voice, fever. He never smoked. He had no upper respiratory symptoms. No history of weight loss, anorexia. No history of previous lung disease. He had chronic renal failure since last 5 years, was on regular hemodialysis 3 times a week. He was a retired school teacher.

He was on regular medication for systemic hypertension and unstable angina. He had mild left ventricular dysfunction. Left ventricular ejection fraction was 50%. He underwent surgery for right brachial AV fistula 6 days prior to the onset of his symptoms. He was in intensive care unit after that surgery for 2 days.

Question 1: Which of the following is LEAST LIKELY to cause cough in this patient?
1. Tropical pulmonary eosinophilia
2. COPD
3. Gastro esophageal reflux disease (GERD)
4. Drug induced cough
5. LV dysfunction

Answer: 2
Predominant symptom in COPD is breathlessness which this patient never had. He had no risk factors to develop COPD and his cough was non productive. All the other conditions can lead to dry cough.

Causes for non productive cough
Upper Airway Cough Syndrome
Tropical pulmonary eosinophilia
Gastro esophageal reflux disease (GERD)
Drug induced cough LV dysfunction/ pulmonary edema
Bronchogenic carcinoma
Benign tumor in the airways.
Mediastinal lesions Foreign
Body aspiration

Further history
He had no upper airway symptoms. He was not on any drugs that could lead to chronic cough. No history or symptoms suggestive of foreign body aspiration. He had no cardiac symptoms

Physical findings
Respiratory rate was 20/minute. Pulse rate was 74/min, regular. BP-130/80 mm Hg. Spo2 was 98 % at room air. Respiratory system examination did not show any abnormality. He had no signs of pulmonary hypertension/right ventricular failure/ Congestive heart failure/ No cardiac murmurs. Other systemic examination was normal.

Question 2: Which of the following is LEAST LIKELY to be the cause for chronic cough in this patient where physical examination is normal?
1. Tropical pulmonary eosinophilia
2. GERD
3. Severe LV dysfunction
4. Small intra thoracic tumor
5. Sub diaphragmatic lesions

**Answer 3.** Severe LV dysfunction will manifest with orthopnea, paroxysmal nocturnal dyspnea and dependant edema which are not seen in this patient. Sub diaphragmatic lesions which are in contact with diaphragm can irritate the diaphragm and can lead to chronic dry cough.

**Initial investigations**

Hemoglobin -11 g/dl. Total leukocyte count – 11,200 cells/cu.mm. Eosinophils - 0. 4 %, ESR-5 mm/1st hour. Platelet count - 1.75 lakh/cu.mm

**Question 3:** What is the next investigation in this patient?

1. Thoracic ultrasound
2. Chest x ray PA view
3. Spirometry
4. CT scan thorax
5. Sputum AFB smear examination

**Answer 2:** First investigation of choice in a patient with chronic respiratory symptom is chest x-ray

**X ray findings:** Under exposed film with rotation to right side. Mediastinal widening with right hilar /Para tracheal homogenous opacity. Elevated dome of diaphragm on right side.

**Question 4:** Which of the following is LEAST LIKELY to cause the x ray abnormality?

1. Bronchogenic carcinoma
2. Mediastinal mass
3. Encysted pleural effusion
4. Partial collapse of right lung
5. Right lower lobectomy

**Answer 3:** There is no blunting of cardiophrenic angle in the x ray. The opacity is towards the mediastinum. Mediastinal encystment of pleural effusion is rare and if present it is usually associated with blunting of cardiophrenic angle.

**Question 5:** Which is NOT a feature of mediastinal lesion in chest x -ray?

1. Hilum overlay sign
2. No air bronchogram
3. Acute margin with the lung
4. Obliterated cardiophrenic angle
5. Obliterated retrosternal clear space

**Answer 3.** Mediastinal lesion will lead to obtuse margin with the lung in chest x ray.
**Question 6:** What is the radiological sign evident in CXR?

**Answer** - Cervico thoracic sign. The anterior mediastinum stops at the level of the superior clavicle. When a mass extends above the superior clavicle, it is located either in the neck or in the posterior mediastinum. When lung tissue comes between the mass and the neck, the mass is probably in the posterior mediastinum.

**Question 7:** What is the next investigation?

1. Contrast enhanced CT scan of thorax
2. Thoracic ultrasound
3. Fluoroscopy
4. PET CT
5. Bronchoscopy

**Answer -1.** Next investigation would be contrast enhanced CT scan of thorax. CT scan will help to determine the nature and extent of the lesion.

![CT Scan Image]

Well defined right paratracheal and paravertebral oval shaped hyper dense lesion within the mediastinum with homogenous attenuation (mean HU 63 units) extending from lung apex superiorly, up to juxta hilar region inferiorly, along the retrosternal fat anteriorly and beyond anterior vertebral border posteriorly. Margins are well defined. No foci of calcification, no central necrosis. No fat/cystic density. No post contrast enhancement. No dilated/abnormal vessels surrounding the lesion. No displacement of vascular structures. No compression of superior vena cava. Mild cardiomegaly and atherosclerotic intimal calcification of aorta is seen. Mild right pleural effusion with fissural extension is seen.

**Question 8:** Which of the following is **NOT** a radiological feature of benign tumor?

1. Small size (less than 3 cm diameter)
2. Well defined smooth borders
3. Associated pleural effusion
4. Polygonal shape
5. Presence of diffuse/central calcification

**Answer 3.**
Pleural effusion associated with a lung tumor is highly suggestive of malignancy.

**Causes for anterior mediastinal widening**

- Lymphadenopathy
- Thyroid Mass – Retro sternal goiter
- Thymic lesion – Thymoma, Thymic carcinoma, hyperplasia, Thymic cyst, Thymolipoma.
- Teratoma
- Lymphoma

**Rare causes:** Lymphatic malformation

- Hemangioma
- Hematoma.
**Question 9:** What are the tumor like lesions in mediastinum?

1. Aortic aneurysm
2. Inflammatory lesions
3. Mediastinal cystic lesions
4. AV malformation
5. Hematoma  

Radiological mimics of intra thoracic tumor:

**Fatty masses**
- Lipoma
- Thymolipoma
- Cystic masses: Bronchogenic cysts
- Duplication cysts
- Mediastinal neuroenteric cysts
- Pericardial cyst
- Thymic cyst
- Lymphangioma

**Question 10:** What is the definitive investigation in mediastinal mass?

**Answer** - Obtain biopsy from the lesion

**Question 11:** What are the mediastinal lesions that should not be biopsied?

**Answer** - Suspected vascular lesion, Cystic lesion. If the lesion is vascular malformation biopsy or FNAC will lead to hemorrhage. Cystic lesion may leakage of the contents leading to complications.

**Question:** What are the mediastinal lesions that **NEED NOT BE** biopsied prior to surgery?

**Answer:** 1. Diagnostic radiological features eg: Teratoma  
2. Tumor markers positive (germ cell tumors)  
3. Clinically and radiologically benign lesions.

**Question 12:** What is Hounsfield unit?

The Hounsfield unit (HU) scale is a linear transformation of the original linear attenuation coefficient measurement into one in which the radio density of distilled water at standard pressure and temperature (STP) is defined as zero Hounsfield units (HU). Radio density of air at STP is defined as -1000 HU.

This lesion had Hounsfield unit 63

Differentiating structures in CECT by Hounsfield value.

### Table: Hounsfield Units (HU)

<table>
<thead>
<tr>
<th>Matter</th>
<th>Density (HU)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Air</td>
<td>-1000</td>
</tr>
<tr>
<td>Lung parenchyma (inspirum)</td>
<td>-850 to -910</td>
</tr>
<tr>
<td>Fat</td>
<td>-30 to -100</td>
</tr>
<tr>
<td>Water</td>
<td>0</td>
</tr>
<tr>
<td>White matter</td>
<td>20 to 30 HU</td>
</tr>
<tr>
<td>Kidney</td>
<td>20 to 40 HU</td>
</tr>
<tr>
<td>Spleen</td>
<td>35 to 50 HU</td>
</tr>
<tr>
<td>Grey matter</td>
<td>37 to 45 HU</td>
</tr>
<tr>
<td>Blood</td>
<td>40 to 65 HU</td>
</tr>
<tr>
<td>Liver</td>
<td>45 to 65 HU</td>
</tr>
<tr>
<td>Hematoma</td>
<td>40 to 90 HU</td>
</tr>
<tr>
<td>Bone</td>
<td>700 to 3000</td>
</tr>
</tbody>
</table>

**References:**

1. Butuc TM. Computed Tomography: From Photon Statistics to Modern Cone-Beam CT. Springer; 2008:475
HU value of 63+. Appears slightly hyper dense on plain CT, no features suggestive of tumor in CT.

**Question 13:** What is the **MOST LIKELY** diagnosis with these CT findings?
1. Bronchogenic cyst
2. Mediastinal hematoma
3. Inflammatory pseudo tumor
4. Thymic cyst
5. Lipoma

**Answer 2.** Well defined right para tracheal, oval shaped, hyper dense, non enhancing, homogenously attenuating lesion in mediastinum with homogenous attenuation (mean HU 63 units) suggestive of mediastinal hematoma.

**Final diagnosis:** Intra thoracic hematoma in the Right paratracheal region

**Question 14:** What is the **MOST COMMON** cause for intra thoracic hematoma?
1. Trauma
2. Following thoracic surgery
3. Bleeding diathesis
4. Anti coagulant therapy
5. Central line insertion

**Answer 1.**

**Causes for intra thoracic hematoma:**
- Thoracic trauma
- Blunt trauma (more common)
- Rapid deceleration (e.g. motor vehicle accident, fall from great height)
- Crush injury
- Penetrating trauma, Stab wound, Gunshot wound
- Cardiac and great vessel aneurysm or rupture
- Iatrogenic factors associated with invasive procedures and surgery
- Coagulation abnormalities
- Bleeding diathesis

**Rare causes for intra thoracic hematoma**
- Neoplasm
- Spontaneous
- Sneezing, Coughing, Emesis
- Uremia
- Reno vascular hypertension

This patient had central line insertion during his post operative period after the surgery for AV fistula. During the procedure inadvertent puncture might have led to intra thoracic hematoma.

**Question 15:** What is the mainstay of management in stable patients with intra thoracic hematoma?
1. Surgical removal of clot
2. Intercostal tube drain
3. Observation and symptomatic treatment
4. Anti coagulant therapy
5. Fibrinolysis

**Answer 3**
**Management of intra thoracic hematoma**

Identify the cause and treat primary. In stable patients with no or minimal radiological or clinical findings management is conservative. Simple techniques such as tube Thoracotomy, Surgical removal of clot can be done if hematoma is large/ patient symptomatic.

Our patient did not have any distressing symptom. Hence no surgical interventions advised. He was given symptomatic treatment with antitussives to reduce cough. His cough subsided.

**Chest x ray after 3 months**- Shows resolution of the lesion.

**Take home message**

Some intra thoracic lesions may mimic a tumor. Before intervention for any intra thoracic lesion, nature of the lesion should be determined. Proper radiological evaluation of a lesion will help in determining the nature of a lesion and presumptive diagnosis.
Middle aged female with dyspnea and complete heart block

Dr. Vishnu Sharma M.
Dr. Harshith N.
Dr. Nuhammed Faseed C.H.

History: A 50-year-old female presented with slowly progressive breathlessness from grade 1 to grade 3 MMRC since last 3 months. She had recurrent episodes of syncope since last 2 months which was not related to posture, exertion or any other triggering factors. She had no headache, neurological or cardiac symptoms or leg swelling. No other respiratory symptoms. No symptoms referable to other systems. No history of any substance abuse. She was not a known diabetic. Her only medication was thyroxin 50mcg per day since last 2 years for hypothyroidism.

Question 1 Which of the following is the MOST LIKELY cause for her symptoms?
  1. Heart disease
  2. Neurological disease
  3. Hypoglycemia
  4. Hypoxemia
  5. Hypercapnia

Answer: 1. Progressive breathlessness with syncope without any other symptoms is most likely to be due to cardiac disease. She had no history of diabetes mellitus or neurological symptoms. Hypoxemia and hypercapnia are less likely in this patient as dyspnea was grade 3 MMRC and she had no other symptoms suggestive of chronic respiratory failure.

Question 2: What is the MOST COMMON cause for syncope in adults?
  1. Orthostatic hypotension
  2. Pulmonary embolism
  3. Hypoxemia due to COPD
  4. Medications
  5. Cardiac causes

Answer 5.

Question 3. Which of the following condition is LEAST LIKELY to cause syncope?
  1. Cardiac arrhythmias
  2. Left ventricular dysfunction
  3. Cardiomyopathy
  4. Chronic cor pulmonale
  5. Valvular heart disease

Answer 4.

Question 4. What is the MOST COMMON cause for syncope in otherwise healthy young adults?
  1. Orthostatic hypotension
  2. Vasovagal attack
  3. Pulmonary embolism
  4. Hypoxemia
  5. Medications

Answer 2. Vasovagal syncope happens when the part of the nervous system which regulates blood pressure and heart rate malfunctions in response to a trigger, such as emotional stress or pain. It commonly occurs while standing and is often preceded by a sensation of warmth, nausea, lightheadedness, tunnel vision or visual "gray out". Placing the person in a reclining position restores blood flow and consciousness, and ends the episode early.
**Physical findings**

General physical examination was unremarkable. No pallor. Her heart rate was 46 beats/minute, regular. Systemic examination was normal.

**Question 5.** What could be the cause for syncope?

1. Left ventricular dysfunction
2. Cardiomyopathy
3. Complete heart block
4. Valvular heart disease
5. Ischemic heart disease

**Answer**

3. Heart rate is low and regular. Patient has no cardiac symptoms. No cardiac findings on examination. Hence complete heart block is the most likely cause for syncope.

**Question 6.** What are the causes for complete heart block with progressive dyspnea?

1. Ischemic/Degenerative/Infiltrative heart disease
2. Hypoxia due to co existent lung disease
3. Systemic diseases which can affect both heart and lungs

**Further investigations**

Routine blood investigations including thyroid function tests, Hemoglobin level, platelet count, Hematocrit values, Liver and renal function tests were normal except **ESR which was 70mm/1st hour**. Blood sugar and electrolytes were within normal limits.

**Question 7.** What is the next investigation?

1. ECG
2. Echocardiogram
3. Chest x ray PA view
4. Cardiac enzymes
5. Spirometry

**Answer**

1. ECG is the initial investigation of choice when complete heart block is suspected. ECG revealed complete heart block with a heart rate of 46 beats per minute.

![ECG Image](image.png)

Echo was normal. Left ventricular ejection fraction was 60%. No pulmonary arterial hypertension. Chest X-ray was normal.

**Question 8.** What could be the cause for progressive dyspnea with complete heart block?

In the absence of any obvious primary cardiac or lung disease or other systemic cause, we thought of auto immune diseases like SLE, Rheumatoid arthritis, Sarcoidosis, Systemic sclerosis. Further evaluation was done.

Ultrasound abdomen revealed presence of enlarged paraortic lymph nodes 4 x 3 cm size. High resolution CT chest was done for the evaluation of dyspnea as early interstitial lung disease may present with progressive dyspnea without physical findings. Spirometry and DLCO was not done in view of complete heart block with recurrent episodes of syncope.
HRCT showed diffuse patchy ground glass opacities in bilateral lower zones with multiple sub pleural interlobar septal nodules, peribronchial thickening and mediastinal lymph nodes.

**Question 9.** What is the most probable diagnosis?
1. Systemic lupus erythematosus
2. Rheumatoid arthritis
3. Sarcoidosis
4. Systemic sclerosis
5. Amyloidosis

**Answer** 3. Mediastinal lymphadenopathy with septal nodule are characteristic of Sarcoidosis

**Question 10.** What is the investigation to establish the diagnosis?

**Answer:** Bronchoscopy and transbronchial biopsy or excision biopsy of para aortic lymph nodes. Laparoscopic excision and biopsy from para aortic lymph node was done.

**Photomicrograph of lymph node biopsy showing noncaseating granuloma**
Biopsy was typical of sarcoidosis. She was started on oral prednisolone 30mg per day. She underwent successful permanent pacemaker implantation (PPI) for the heart block. Currently after 4 months of treatment patient is symptomatically better, her dyspnea has subsided. Oral prednisolone tapered to 10mg per day.

**Cardiac Sarcoidosis**

In older studies, sarcoidosis was estimated to affect the heart in approximately 5% of patients. However, autopsy studies indicate that cardiac involvement is present in up to 25–30% of patients with systemic sarcoidosis. Cardiac sarcoidosis can be clinically silent or symptomatic.

**Question 11.** Which of the following is **LEAST LIKELY** cardiac manifestation in Sarcoidosis?

1. Congestive heart failure  
2. Complete heart block  
3. Pericardial effusion  
4. Atrial arrhythmias  
5. Ventricular arrhythmias **Answer 3.** Sarcoidosis can involve any region of the heart. Most common areas of involvement are the basal segment of the inferolateral left ventricular free wall and the basal interventricular septum, followed by the atrium, papillary muscles, the right ventricle and the pericardium. But pericardial effusion is rare.

**Question 10.** Which of the is **DIAGNOSTIC** investigation in cardiac Sarcoidosis (CS)？

1. ECG  
2. Echocardiography  
3. Holter monitoring  
4. Endomyocardial biopsy  
5. PET-CT  

**Answer 4.** Holter monitoring is an effective screening tool to detect arrhythmias. Echocardiography can help risk-stratify patients with suspected cardiac Sarcoidosis by quantifying right and left ventricular function. Echocardiography is useful for assessing the response to immunosuppressive therapy in patients with documented ventricular dysfunction. When used together, ECG, Holter monitor, and echocardiogram are highly sensitive for detecting cardiac involvement in Sarcoidosis. Endomyocardial biopsy is the diagnostic investigation in cardiac Sarcoidosis. Diagnostic yield of Endomyocardial biopsy has been reported to be as low as 20% because of the patchy distribution of the disease often involving the left ventricular or the basal septum and sparing the endocardium. Hence it is done only when diagnosis is not obvious by other means. Granulomas and fibrotic scars are not mainly located in the right ventricular where the samples are taken. Advanced cardiac imaging with CMR and PET-CT are newer modalities that help in differentiating cardiac Sarcoidosis from other disease processes such as ischemic heart disease and arrhythmogenic right ventricular dysplasia (ARVD).
The American College of Cardiology/American Heart Association guidelines list cardiac Sarcoidosis as a class IIa (level of evidence C) indication for pacemaker implantation for primary prevention of sudden death. In cardiac Sarcoidosis associated with refractory heart failure or ventricular tachycardia, cardiac transplantation may be only treatment option.

**Learning points.** When a patient has symptoms suggestive of more than one organ involvement, differential diagnosis includes conditions which can affect these organs simultaneously. Symptoms and signs in Heart and lung disease often overlap. Heart disease can involve the lungs and vice versa. Some diseases especially connective tissue/autoimmune/systemic disorders /malignancies can involve heart and lungs simultaneously. Cardiac involvement in Sarcoidosis is the most common cause for death in these patients. All patients with Sarcoidosis should be evaluated for cardiac involvement. Cardiac Sarcoidosis should be diagnosed and treated properly to prevent fatality.

**References**

1. Silva JR, Correia E, Gama P, Nascimento C, Dionísio O, Santos O; Cardiac sarcoidosis: a case report; Rev Port Cardiol 2008 Sep;27(9):1147-54
2. Kyle Mcbeath, Shohreh Honarbakhsh, Mohammad Chowdhury, Fahad Farooqi; Undiagnosed cardiac sarcoidosis presenting as complete heart block and ventricular arrhythmia; BMJ Case Reports 2015; doi:10.1136/bcr-2015-211736
Recurrent pleural effusion in a young female

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Dr Aparna S. Nirmal
Dr. Arun Jude Alphonse
Dr. Abhinandan S. Kumbar

History
A 46-year-old female was admitted with history of cough with scanty mucoid expectoration since 3 months, slowly progressive breathlessness and left sided dull aching chest pain since one month. She had no hemoptysis, fever or other respiratory symptoms. No systemic symptoms. No weight loss. She had no GI symptoms. Her menstrual history was normal. She had smear positive pulmonary tuberculosis 13 years back. She took regular medications and was declared cured. She had no respiratory symptoms after that until last 3 months. No past history of any other significant illness. She was a homemaker, never had any occupational exposure. No history of any addictions, passive smoking.

Question 1. What is the MOST LIKELY cause for her symptoms?
1. Recurrence of pulmonary tuberculosis
2. Left sided pleural effusion
3. Bronchogenic carcinoma
4. Unresolving pneumonia
5. Asthma COPD overlap

Answer – 2. She had no history fever, weight loss. Chest pain and progressive dyspnea as presenting symptom without fever other constitutional symptoms is unlikely in pulmonary tuberculosis, unresolving pneumonia. She had no risk factors to develop bronchogenic carcinoma. No history suggestive of Asthma COPD overlap.

Physical examination – She was moderately built and nourished. BMI was 21.3kg/m^2. General physical examination was unremarkable. She had no thyroid swelling. No palpable cervical lymph nodes. Respiratory system examination revealed features of moderate left sided pleural effusion. Breast and abdomen examination, other systemic examination did not reveal any abnormality.

Question 2 – Which of the following is MOST LIKELY cause for pleural effusion in this patient?
1. Tuberculosis
2. Pancreatic pleural effusion
3. Empyema
4. Malignant mediastinal tumor
5. Congestive cardiac failure

Answer – 1. Most common cause for pleural effusion without systemic symptoms is tuberculosis. She had no symptoms or any physical findings to suggest any other alternative diagnosis. Her chest x ray showed moderate left pleural effusion. Blood routine reports were normal.

Question 3 – What is the next investigation in this patient
1. CECT scan thorax
2. HRCT scan thorax
3. Chest x ray left lateral decubitus view
4. USG thorax and abdomen
5. Thoracoscopy

**Answer** - 4. USG thorax and abdomen should be done before thoracocentesis any patient with pleural effusion.

**Question 4** – Which of the following is a **WRONG** statement regarding USG in pleural effusion?
1. Useful for confirmation of pleural effusion
2. Can estimate the quantity of pleural fluid
3. Useful to decide the site for pleural aspiration
4. Can detect encysted pleural effusion
5. Can detect associated mediastinal mass

**Answer** – 5. Mediastinum can’t be visualized in adults by USG. USG confirmed left pleural effusion. USG abdomen was normal. Thoracocentesis was done.

400 ml straw colored pleural fluid was aspirated. Pleural fluid analysis showed exudative, lymphocytic effusion with ADA level of 89 U/mL. Cytology did not show any malignant cells. Sputum AFB smear was negative. Sputum for Gene X- PERT for MTB was negative. Hence a presumptive diagnosis of tubercular pleural effusion was made patient was started on ATT.

Patient came back after 10 days with increasing breathlessness. She had no other symptoms. Repeat chest x ray showed increase in left pleural effusion with mediastinal shift to opposite side.

**Question 5** – Which of the following is the **MOST LIKELY** cause for increase in pleural effusion.
1. Underlying malignancy
2. Pancreatic pleural effusion
3. Drug resistant tuberculosis
4. Iatrogenic empyema
5. Noncompliance to ATT

**Answer** - 1. Drug resistance in tubercular pleural effusion is uncommon. She had no fever or chest pain to suspect iatrogenic empyema. Massive effusion is least likely even in drug resistant tuberculosis. Most common cause for increasing effusion with mediastinal shift is malignant pleural effusion.

**Question 6** – What is the next investigation in this patient
1. Repeat pleural aspiration and analysis
2. CECT thorax
3. Closed pleural biopsy
4. Thoracoscopy and pleural biopsy
5. Repeat USG thorax

**Answer** – 2. Since underlying malignancy is the most likely cause CECT should be done which visualize any intra thoracic lesion in addition to pleural effusion.
**CECT scan**
Large left pleural effusion causing mild mediastinal and tracheal shift to right side. Dense consolidation in anterobasal segment of left lower lobe with patchy sub pleural areas of consolidation in inferior lingular anterobasal and superior basal lung segments of left lower lobe. Sub segmental consolidation with bronchiectasis in medial segment of right middle lobe.

**Question 7** – What is the next diagnostic investigation
1. Bronchoscopy
2. Thoracoscopy and biopsy
3. CT guided biopsy from the lung lesion
4. Repeat pleural fluid aspiration and analysis
5. Continue AIT and observe for 2 weeks

**Answer** – 2.
Patient underwent Thoracoscopic biopsy.

**Biopsy**
Sections from parietal/visceral/diaphragmatic pleura show infiltrating tumor exhibiting combinations of tubules, papilla with connective tissue cores, clefts, and trabeculae. Cells lining tubules and papillae are flattened to low cuboidal with mild pleomorphism. Predominantly show epithelioid morphology. Scattered psammoma bodies are seen in tumor tissue. stroma surrounding Desmoplastic and chronic inflammatory cells. Foci of necrosis and hemorrhage

**Impression** Features are suggestive of epithelioid mesothelioma
This patient had no risk factors to develop mesothelioma. Without any risk factor mesothelioma is rare in a young female.

**Question 8** – Which of the following malignancy can mimic mesothelioma
1. Adenocarcinoma
2. Squamous cell carcinoma
3. Sarcoma
4. Non-Hodgkin's lymphoma
5. Angiosarcoma

**Answer** – 1

**Question 9** – What further investigation is required to differentiate between mesothelioma and adenocarcinoma
1. PET CT
2. Bone scan
3. Immunohistochemistry
4. Tumor markers
5. Bronchoscopy and biopsy from lung lesion
Answer - 3
Hence immunohistochemistry was done.

IHC was positive for
  • Pan CK
  • CK 7
  • Napsin A
  • TTF - 1

Negative for
  • Calretinin
  • CK – 20
  • WT - 1

IHC IMPRESSION – Adenocarcinoma.

Question 10 – What is the MOST LIKELY primary site
  1. Left lung lesion
  2. Breast Thyroid
  3. Upper GI tract
  4. Ovary
  5. 

Answer – 1. CECT showed lesion in left lung. Her symptoms, physical examination and USG report did not reveal any findings to suspect lesion in other organs.

PET CT was done

Question 11 – Which of the following is a WRONG statement regarding PET CT?
  1. May help to detect extent of spread in a malignancy
  2. May help to identify possible primary site
  3. Useful to identify possible recurrence of malignancy
  4. Useful in definitive diagnosis of malignancy
  5. Has high specificity for detecting malignancy

Answer – 5. PET CT has high sensitivity but lower specificity. Inflammatory lesions can lead to positive scan.

PET CT REPORT.
Active disease noted in the ill-defined left hilar soft tissue mass extending up to lingular segment (site of primary malignancy). Extensive metastatic left pleural deposits. Hyper metabolic multiple areas of irregular nodular septal thickening noted in the left lung could represent lymphangitic carcinomatosis. Metastatic mediastinal and right supra clavicular lymphadenopathy. Mild left pleural effusion. Hyper metabolic sub cm sized coeliac nodes appear suspicious for metastatic involvement. No active disease elsewhere in the body.
**Final diagnosis**

Adenocarcinoma left lung with left malignant pleural effusion with lymphangitic carcinomatosis left lung with right supra clavicular lymph node secondary.

**Question 12** – What is the treatment for symptomatic malignant pleural effusion?

1. Repeated thoracocentesis
2. Intercostal tube drainage and chemical pleurodesis
3. Pig tail insertion and drainage of fluid
4. Chemo radiation
5. Thoracoscopic pleurectomy

**Answer** - 2

After thoracoscopy pleurodesis was done with cyclophosphamide. Intercostal tube was removed after 7 days. In view of stage 4 disease patient received palliative chemo radiation and symptomatic treatment.

**Learning points**

Any pleural effusion which is massive, recurrent, haemorrhagic without obvious cause is likely to be malignant effusion. Malignancy can occur at any age. In females the common primary sites include Lung, breast, ovary and adnexa, thyroid and GIT. Further evaluation should be if pleural effusion recurs while the patient is on ATT as accumulation of effusion in tuberculosis is rare while on treatment. Intercostal tube drain and chemical pleurodesis is indicated in symptomatic malignant pleural effusion.
References


Section 2
Images
1. A 56-year-old chronic smoker presented with cough and recurrent mild hemoptysis since last 3 months. What is the radiological abnormality?
   1. Left upper lobe collapse  Total
   2. Lung collapse on left side
   3. Mediastinal mass
   4. Left hilar mass
   5. Left lower lobe collapse

**Answer:** 1. Left upper lobe collapse.
Cardiac shadow is shifted to left with volume loss in the left hemi thorax. 'Veil-like' opacification of the left hemi thorax obscuring the left heart border is seen which is characteristic of left upper lobe collapse. Left hemi diaphragm is still visible indicating sparing of the left lower lobe.

**Question** - What is the radiological sign in left upper lobe collapse?
**Answer**- Luftsichel sign. This is seen as a lucent stripe between the medial edge of the collapsed left upper lobe and the aortic arch in frontal chest radiograph. This appearance is due to hyperinflation of the superior segment of the left lower lobe interposing between the mediastinum and the collapsed left upper lobe.

2. A 46-year-old male admitted with fever, cough with sputum and right sided chest pain since 15 days. What is the sign in CT scan?
   1. Extra pleural sign
   2. Split pleura sign
   3. Continuous diaphragm sign
   4. Air crescent sign
   5. Bulging fissure sign

**Answer**- 2. Split pleura sign.
**Question.** Split pleura sign is seen in ---
1. Mesothelioma
2. Transudative pleural effusion
3. Chylothorax
4. Empyema
5. Pulmonary alveolar proteinosis

**Answer - 4.**

Split pleural sign is one of the reliable radiological sign to distinguish empyema from other causes for pleural effusion. As empyema progresses, a fibrin peel coats the surfaces of the visceral and parietal pleural layers with ingrowth of capillaries and fibroblasts and subsequent pleural thickening. This forms the basis of the split pleura sign - thickened visceral and parietal pleural layers separated by empyema. CECT will show a loculated fluid collection with thickened visceral and parietal pleural layers showing contrast enhancement. Both layers of the pleura can be visualized as linear regions of enhancement that divide around a less dense empyema.

3. A 54-year-old male, non-smoker presented with gradually progressive breathlessness since last 5 years. He had no other respiratory symptoms. What is the **MOST LIKELY** diagnosis?
   1. Diaphragmatic hernia
   2. Diaphragmatic eventration
   3. Hiatus hernia
   4. Infected bulla
   5. Encysted Hydro pneumothorax

**Answer.** 2. X-ray shows elevated left hemi diaphragm. There is no breach in the continuity of the hemi diaphragm. This is characteristic of diaphragmatic eventration.

4. A 76-year-old man, chronic smoker admitted with acute breathlessness. Chest x ray is shown before and after treatment. What is the **MOST LIKELY** diagnosis?
   1. ARDS
   2. Bronchopneumonia
   3. Pulmonary tuberculosis
   4. Alveolar hemorrhage Cardiogenic pulmonary edema
   5. Cardiogenic Pulmonary edema

What is the most likely diagnosis?
**Answer** – 5. Rapid improvement with almost clear lung parenchyma within one day is diagnostic of cardiogenic pulmonary edema.

**Question.** Which of the following is NOT a radiological sign of cardiogenic pulmonary oedema?

1. Increase in cardio-thoracic ratio,
2. Peri-bronchial cuffing
3. Kerley B lines
4. Kerley Alines
5. Pleural effusion on left side

**Answer** – 5. Pleural effusion due to cardiac failure is usually small, more common on right side, sometimes bilateral. Right minor fissure effusion may be seen in some cases.

5. Compare the two chest x-rays of 18-year-old male with obesity. What procedure was done?

1. Liposuction
2. Bariatric surgery
3. Reduction mammoplasty
4. Pleural fluid aspiration
5. Aspiration of left pneumothorax

**Answer**– 3. First x-ray shows bilateral breast shadows which is not seen in the second x-ray. This young male had gynecomastia, underwent bilateral reduction mammoplasty.

Presence or absence of soft tissue in chest will change the radiological appearance in chest x-ray. Soft tissue shadow can be unilateral or bilateral. Sometimes a soft tissue shadow can mimic solitary pulmonary nodule on chest x-ray PA view. Borders of the lesion is usually well defined and smooth, may be continuous with chest wall in case of soft tissue shadow in chest x-ray. Physical examination and chest x-ray lateral view will be useful whenever a soft tissue lesion is suspected as the cause for abnormal chest radiograph.

6. A 38-year-old male admitted with fever, cough and weight loss since one month followed by sudden right sided pleuritic chest pain and breathlessness. What are the radiological abnormalities?

1. Cavity in right side with small pneumothorax
2. Cavity in right side with small pneumothorax with bilateral infiltrates
3. Cavity with small pneumothorax on right side with bilateral infiltrates with Intercostal tube drain on right side
4. Right sided hydro pneumothorax with Intercostal tube drain on right side
5. Right sided pneumothorax with re expansion pulmonary edema on right side with Intercostal tube drain on right side
Answer-3. It is important to note the Intercostal tube position. One of the side holes is in the subcutaneous space. This can lead to surgical emphysema. Hence the tube should be repositioned properly.

Question- Which of the following is LEAST LIKELY to cause the above radiological abnormality?

1. Pulmonary tuberculosis
2. Staphylococcal pneumonia
3. Bronchogenic carcinoma
4. Klebsiella pneumonia
5. Melioidosis

Answer - 3. Pneumothorax, cavity with air fluid level and bilateral infiltrates can occur in infectious diseases, most common being tuberculosis and bacterial pneumonias.

7. A 46-year-old female admitted with recurrent hemoptysis. What is the radiological sign?

1. Air crescent sign
2. Hilum overlay sign
3. Cortical ring sign
4. Comet tail sign
5. Double density sign

Answer - 1. Air crescent sign is suggestive of Aspergilloma. Post tubercular cavity is the most common cavity leading to Aspergilloma.

8. A 26-year-old male with 3 weeks' history of fever, cough, mild hemoptysis. What is the most likely diagnosis?

1. Staphylococcal pneumonia
2. Pulmonary tuberculosis
3. Pneumococcal pneumonia
4. Bronchogenic carcinoma
5. Melioidosis
Answer-2. Chest x-ray shows cavity in the right upper lobe with surrounding infiltrates. Infections are the most common cause for cavity. 3 weeks' history of fever, cough and mild hemoptysis with right upper lobe cavity with surrounding infiltrates is highly suggestive of pulmonary tuberculosis. In bacterial infections symptoms are usually acute in onset. Tubercular cavity is thin walled, can be single or multiple, more common in upper lobe, right side more than left, may be surrounded by infiltrates and usually devoid of any air fluid level.

9. A 56-year-old female admitted with progressive breathlessness since last 3 years. What is the radiological abnormality?
   1. Encysted pneumothorax left side
   2. Large cavity left upper and mid zone
   3. Large bulla in the left upper and mid zone with compression of adjacent lung parenchyma
   4. Severe emphysema
   5. Pulmonary embolism left side

   Answer - 3. There is a hyper translucency in the left upper and mid zone which is relatively avascular with compresses left lower lobe suggestive of a large bulla. Right upper zone also shows hyper translucency with reduced Broncho vascular markings.

10. A 36-year-old male, diabetic, chronic alcoholic admitted with history of fever, cough, weight loss since 6 weeks and sudden breathlessness since one day. What is the MOST LIKELY diagnosis?
   1. Encysted Hydro pneumothorax left side
   2. Infected bulla on left side
   3. Large cavity with air fluid level on left side
   4. Post left lower lobectomy left side
   5. Diaphragmatic hernia on left side

   Answer - 1. X-ray shows cavity with surrounding infiltrates on right side in addition to encysted hydro pneumothorax on left side. Most common cause is tuberculosis. Other infections like Klebsiella pneumonia, Pseudomonas pneumonia, Melioidosis, anaerobic infections and necrotizing pneumonia also can lead to similar radiological appearance especially in immunocompromised host.
11. A 28-year-old male admitted with right sided chest pain. Which is the **LEAST LIKELY** diagnosis?
   1. Mediastinal tumor
   2. Bronchogenic carcinoma
   3. Solitary secondary
   4. Encysted pleural effusion
   5. Klebsiella pneumonia

   **Answer - 4.** In encysted pleural effusion there will be some blunting of CP angle which is not seen in the x-ray. In severe pneumonia due to Klebsiella bulging fissure sign may be seen which is due to edema of horizontal fissure.

12. What is the most likely diagnosis?
   1. Pneumothorax on left side
   2. Hydro pneumothorax on left side
   3. Diaphragmatic hernia left side
   4. Infected giant bulla on left side
   5. Eventration of diaphragm on left side

   **Answer - 2.** X-ray shows air fluid level on left side with multiple rib fractures which is highly suggestive of Hemopneumothorax. This patient had road traffic accident.

13. This patient was admitted with fever, cough with purulent sputum since 2 days. Which of the following is **LEAST LIKELY** radiological differential diagnosis in this x ray?
   1. Infected bulla
   2. Infected preexisting cavity
   3. Active pulmonary tuberculosis
   4. Large lung abscess
   5. Infected cyst
Answer – 3. Thick walled large cavity without any surrounding parenchymal lesion is least likely in active pulmonary tuberculosis.

14. What is the most likely radiological diagnosis?
   1. Multiple rib fracture on left side with left pleural effusion most likely hemothorax
   2. Thoracoplasty on left side
   3. Left sided pleuropulmonary fibrosis
   4. Left sided encysted pleural effusion
   5. Post thoracotomy chest x ray

Answer-1. Chest x ray shows multiple rib fracture on left side with left pleural effusion. This is most likely due to trauma and presence of pleural effusion with rib fracture is highly suggestive of hemothorax. Most common causes for multiple rib fracture include fall from a height, road traffic accident, steering wheel injury and blunt trauma to the chest.

15. Which is the MOST LIKELY radiological diagnosis?
   1. Bronchiectasis left side
   2. Pulmonary tuberculosis left side
   3. Bronchiectasis left side with compensatory hyperinflation right lung with right upper zone fibrosis
   4. Hypoplasia of left lung
   5. Fibocavity left side

Answer – 3. There is loss of volume on left side with bronchiectasis left lung with gross shift of mediastinum to left side. In agenesis there will be complete absence of Broncho vascular markings. Presence of right upper lobe fibrosis is highly suggestive of post tubercular sequelae as the cause. Broncho stenosis on left side indicates endobronchial tuberculosis as the etiology.

16. What is the MOST LIKELY radiological diagnosis?
   1. Lower lobectomy right side
   2. Pleural thickening on right side
   3. Open drainage done on right side with pleural calcification
   4. Multiple fracture ribs on right side
   5. Silicosis with pleural and parenchymal lesion right side
Answer - 3. X-ray shows scoliosis with pleural calcification with rib crowding and deformity of lower ribs on right side with soft tissue abnormality in right lower chest which indicates open drainage. Open drainage is done in chronic empyema and this usually leads to pleural calcification on healing. Open pleural drainage is done in chronic empyema in patients who are unfit for definitive surgery. Open drainage is contra indicated in patients with no proper adherence of surrounding lung tissue to the chest wall. Pneumothorax can be a complication of the procedure. This procedure is rarely done nowadays.

17. A 76-year-old male, chronic smoker admitted with history of cough and mild recurrent hemoptysis since last 6 months. What is the MOST LIKELY radiological diagnosis?
1. Tubercular cavity
2. Lung abscess
3. Cavitating bronchogenic carcinoma
4. Infected cyst
5. Infected bulla

Answer - 3. X-ray shows a dense perihilar opacity with ill-defined borders on right side with eccentric cavitation. There is no air fluid level in the cavity. Hence most likely diagnosis is cavitating bronchogenic carcinoma. Most common site for cavitating bronchogenic carcinoma is right upper lobe, cavity is usually single, thick walled. Ischemia is the main cause for cavitation in bronchogenic carcinoma. Cavitation is more common in squamous cell carcinoma. Cavitating bronchogenic carcinoma has poorer prognosis

18. This was a 36-year-old male presented with left sided dull aching chest pain since 4 months. What is the MOST LIKELY diagnosis?
1. Mediastinal tumor
2. Bronchogenic carcinoma
3. Solitary secondary
4. Encysted pleural effusion
5. Pleural tumor
Answer 1. The lesion has a well-defined lateral border. Medial border is merging with the mediastinum. There is no air bronchogram. No evidence of pleural effusion. Hence most likely diagnosis is mediastinal tumor.

19. A 46-year-old male, chronic alcoholic and smoker admitted with 15 days' history of fever, cough and purulent sputum. What is the LEAST LIKELY diagnosis?
   1. Tuberculosis
   2. Klebsiella pneumonia
   3. Anaerobic infection
   4. Viral pneumonia
   5. Staphylococcal infection

Answer 4. X ray shows multiple cavities in right upper and mid zone. In primary viral pneumonia cavitation does not occur. Viral pneumonia is usually bilateral and bronchopneumonia.

20. This was a 26-year-old patient admitted with 3 weeks' history of fever, cough, purulent sputum. Which is the LEAST LIKELY radiological diagnosis?
   1. Lung abscess
   2. Ruptured hydatid cyst
   3. Infected intra pulmonary bronchogenic cyst
   4. Congenital cystic adenomatoid malformation (Congenital pulmonary airway malformation)
   5. Infected preexisting cavity
21. What is the MOST LIKELY radiological diagnosis?
   1. Partial collapse of left lower lobe and lingula
   2. Collapse of lingula
   3. Collapse of left lower lobe
   4. Partial collapse of left upper lobe and lingula
   5. Raised left dome of diaphragm

Answer - 2. The lesion is in the lower lobe with prominent air fluid level. Hydatid cyst is least likely to occur in left lower lobe. There are no other radiological features of ruptured hydatid cyst. The lesion is in the posterior basal segment of left lower lobe, the most dependent area. Hence lung abscess is the first diagnosis.

Answer - 1. Lateral part of left diaphragm is not seen. Fundic gas shadow is elevated indicating elevation of left dome of diaphragm. This indicates left lower lobe partial collapse. Left cardiac border is silhouetted indicating involvement of lingula.

22. What is the MOST LIKELY radiological diagnosis?
   1. Benign posterior mediastinal mass
   2. Malignant anterior mediastinal mass
   3. Malignant posterior mediastinal mass
   4. Benign anterior mediastinal mass
   5. Bronchogenic carcinoma

Answer - 3. Chest x-ray appears to be that of a young female as breast shadow is seen and no costochondral calcification is evident. There is a mass on right side eroding posterior end of 6th rib. Rib erosion by the lesion is almost sure sign of malignancy. Primary bronchogenic carcinoma in a young female is rare. Hence it is most likely to be malignant posterior mediastinal mass. Most common posterior mediastinal tumor is neurogenic tumor. Rarely tuberculosis and Actinomycosis can cause rib erosion.

Answer - 3. Chest x-ray appears to be that of a young female as breast shadow is seen and no costochondral calcification is evident. There is a mass on right side eroding posterior end of 6th rib. Rib erosion by the lesion is almost sure sign of malignancy. Primary bronchogenic carcinoma in a young female is rare. Hence it is most likely to be malignant posterior mediastinal mass. Most common posterior mediastinal tumor is neurogenic tumor. Rarely tuberculosis and Actinomycosis can cause rib erosion.

23. What is the MOST LIKELY cause for the change in the second x ray?
   1. Traumatic pneumothorax left side
2. Pneumothorax ex vacuo left side
3. Intercostal tube drain left side
4. Left pneumonectomy
5. Iatrogenic pneumothorax left side

Answer - 4. First x-ray shows complete collapse of left lung with left main bronchus cut off sign indicating occlusion by a tumor. Second x-ray shows left sided pneumothorax with intercostal tube drain with sutures indicating pneumonectomy has been done. This patient had Carcinoid tumor occluding left main bronchus with chronic collapse of left lung.

24. What is the **MAJOR** abnormality in the x-ray?
   1. Collapse left lung
   2. Bilateral consolidation
   3. Pleural effusion left side
   4. Cardiogenic pulmonary edema
   5. Endotracheal tube in right main bronchus

Answer - 5. Complications include Hyperinflation of right lung, barotrauma, collapse of left lung and hypoxia. All the radiological changes are secondary to the endotracheal tube in the right main bronchus.

25. What is the radiological diagnosis?
   1. Bilateral pneumothorax
   2. Interstitial lung disease with honey combing
   3. Bilateral upper lobe multiple cavities
   4. Bilateral upper lobe para septal emphysema
   5. Langerhans cell histiocytosis
**Answer:** 4. CT scan axial section lung window shows classical Bilateral upper lobe para septal emphysema which is usually due to smoking.

26. What is the radiological diagnosis?
1. Pulmonary lymphangitic carcinomatosis
2. Interstitial lung disease with honey combing
3. Bilateral lower lobe bronchiectasis
4. Lymphangioliomyomatosis
5. Langerhans cell histiocytosis

![CT Scan](image)

**Answer:** 2. CT scan thorax axial view lung window shows bilateral lower lobe honeycombing.

27. **Question:** Which of the following is NOT a radiological feature to differentiate ILD from multiple para septal emphysematous bullae?
   1. Lesions more in lower lobes
   2. Wall of the honeycombing layer is thinner
   3. Apicobasal gradient
   4. Honeycombing is multi-layered
   5. Bilateral

**Answer:** 2. Wall of the honeycombing layer is thicker compared to wall of bulla

28. What is the radiological diagnosis?
1. Right upper lobe consolidation
2. Right upper lobe collapse
3. Malposition of endotracheal tube in right main bronchus
4. Golden S sign
5. Bulging fissure sign

![Image](image)

**Answer:** 2.
29. What is the **MOST LIKELY** diagnosis?
   1. Eventration of diaphragm
   2. Carcinoma of stomach
   3. Para esophageal type hiatus hernia
   4. Achalasia cardia
   5. Cavitating malignancy left lower lobe

   **Answer** - 3. The muscular wall is diagnostic of stomach.

30. Which segment is predominantly involved?
   1. Right upper lobe posterior segment
   2. Right lower lobe apical segment
   3. Right lower lobe medial segment
   4. Right lower lobe lateral segment
   5. Right lower lobe posterior basal segment

   **Answer** – 2.

31. What is the **MOST LIKELY** diagnosis?
   1. Mediastinal mass
   2. Bilateral lung secondaries
   3. Breast shadow
   4. Bilateral breast implants
   5. Pericardial cyst
**Answer-4.** X ray shows bilateral lesion in the region of the breast with smooth contour with normal surrounding lungs which is suggestive of breast implants. This person underwent sex change from male to female. Sex of the patient is best identified in CXR by the pattern of costochondral calcification. Costal cartilage follows a typical mineralization pattern based on gender. In males, the typical calcification pattern on frontal radiographs consists of parallel lines extending medially from the ends of the anterior ribs. On lateral radiographs, these calcifications appear as circles. In females, the pattern can be central or globular. The central pattern, also known as the "wagging tongue" pattern, can also be seen in up to 2% of males. These are linear ossifie tongues arising from the center of the rib at the costochondral junction. The globular pattern, may be seen in postmenopausal women and consists of smooth, rounded, centrally indistinct foci of ossification in the central portion of the costal cartilage.

32. What is the abnormality in the chest x ray?
   1. Mediastinal widening
   2. Bilateral hilar lymphadenopathy
   3. Bronchogenic cyst
   4. Aortic aneurysm
   5. Right upper lobe collapse

**Answer -1.**

33. What is the MOST LIKELY diagnosis?
   1. Tracheal tumor with lung secondaries
   2. Bronchogenic carcinoma with large neck lymph nodes
   3. Lymphoma with lung lesion and neck lymph nodes
   4. Carcinoma thyroid with multiple secondaries
   5. Submandibular salivary gland tumor with lung secondaries
**Answer-4.** X ray shows a large lesion in the neck with cervicothoracic sign with deviation of trachea to left side. This is diagnostic of thyroid swelling. There are multiple opacities more in the lower zone suggestive of secondaries.

34. What is the diagnosis?
   1. Collapse of right lower lobe
   2. Collapse of right middle lobe
   3. Encysted right pleural effusion
   4. Eventration of diaphragm right side
   5. Partial collapse right middle and lower lobe

![X-ray Image](image1.png)

**Answer-5.** X ray shows right lower zone opacity with silhouetting of right cardiac border and right dome of diaphragm indicating collapse of middle and lower lobe.

35. Which of the following is **LEAST LIKELY** diagnosis?
   1. Pulmonary tuberculosis
   2. Klebsiella pneumonia
   3. Pneumococcal pneumonia
   4. Aspiration pneumonia
   5. Staphylococcal Pneumonia

![X-ray Image](image2.png)

**Answer-4.** Chest x-ray shows infiltrative lesion with breakdown predominantly right upper lobe. Aspiration pneumonia is least likely in right upper lobe.

36. What is the abnormality?
   1. Esophageal stent
   2. Tracheal stent
   3. Stent in right main bronchus
   4. Stent in left main bronchus
   5. Endotracheal tube
Answer: 1. CT scan thorax mediastinal window axial section in the lower part at the level of cardiac chambers. Hence the stent is in esophagus.

37. Which of the following is **LEAST LIKELY** to cause the following radiological abnormality?
   1. Right lower lobe collapse
   2. Right lower lobectomy
   3. Liver abscess
   4. Right upper lobe collapse
   5. Right phrenic nerve palsy

Answer - 4. Chest x-ray shows raised right dome of diaphragm. This is least likely to occur in right upper lobe collapse.

38. What is the **LEAST LIKELY** cause for the following radiological abnormality?
   1. Sub pulmonic effusion
   2. Liver abscess
   3. Right lower lobectomy
   4. Right lower lobe collapse
   5. Eventration of right dome
**Answer**: 4. No features of collapse like volume loss, shift of mediastinum are visible in the chest x-ray.

39. What is the **MOST LIKELY** diagnosis?
   1. Chronic hydro pneumothorax on right side with pleural thickening
   2. Mesothelioma right side
   3. Post pneumonectomy right side
   4. Encysted pneumothorax right side
   5. Bronchial rupture with fallen lung sign

**Answer**: 1. This usually occurs when there is Broncho pleural fistula. In India tuberculosis is the most common cause. In developed countries post pneumonectomy bronchial stump dehiscence is the most common cause, which usually occurs on right side because of short right main bronchus.

40. This patient became more breathless immediately after intercostal tube drain for pneumothorax. What is the **MOST LIKELY** diagnosis?
   1. Aspiration pneumonia
   2. Re expansion pulmonary edema
   3. Bronchopneumonia
   4. Cardiogenic pulmonary edema
   5. Extensive Pneumomediastinum

**Answer**: 2. First x-ray shows non-homogenous opacities on the side of intercostal tube drain which cleared after 3 days. Increased dyspnea immediately after intercostal tube drain for pneumothorax with non-homogenous opacities on the same side is diagnostic of re-expansion pulmonary edema.

41. What is the **MOST LIKELY** diagnosis?
   1. Multiple lung secondaries
   2. Tuberculosis
   3. Multiple hydatid cysts
   4. Histoplasmosis
   5. Broncho alveolar cell carcinoma
Answer - 1. Bilateral multiple opacities more in lower zone suggestive of secondaries.

42. Which lobe is predominantly involved?
1. Left upper lobe
2. Left lower lobe
3. Lingula
4. Left lower lobe and lingula
5. Left upper lobe and Lingula

Answer - 2. The opacity is seen in the left mid and lower zone. Left border of the heart is visible. There is silhouetting of left dome of diaphragm. Hence the lesion is in left lower lobe.

43. This x ray was taken in a lactating female with asthma. What is the abnormality?

Answer - Absent breast shadow on right side. This patient did not have history of any other illness except bronchial asthma. X ray shows absence of breast shadow on the right side. There was no history of any surgery. Physical examination confirmed hypoplasia of right breast. Soft tissue shadow in chest x ray can lead to change in density. It can mimic a tumor. Physical examination will be useful to identify the soft tissue abnormality. Chest x-ray PA and lateral view may be helpful for diagnosis.

44. What is the radiological sign?
1. Gloved finger sign
2. Hilum overlay sign
3. Hilum convergence sign
4. Cervico thoracic sign
5. Golden S-sign
Answer - 5. Most common cause for golden S sign is central bronchogenic carcinoma. However, it can occur in other conditions which cause mediastinal adenopathy leading to collapse of a lobe due to compression by the node. It is most often seen in right side. Reverse shaped S is suggestive of right upper lobe collapse. S sign can also be seen with the collapse of other lobes.

45. What is the MOST LIKELY diagnosis?
   1. Consolidation right upper lobe
   2. Consolidation right upper and middle lobe
   3. Mass lesion right upper lobe
   4. Mediastinal mass
   5. Obstructive pneumonia right upper lobe

Answer - 5

46. What is the abnormality?

   1. Right hilar prominence
   2. Partial collapse right lower lobe
   3. Right middle lobe partial collapse
   4. Right upper lobe consolidation
   5. Teeth in right lower lobe bronchus

Answer - 5. This patient was admitted following a road traffic accident. He had facial injury and cough. Respiratory system examination was normal. He had aspirated the teeth during accident.

47. What is the MOST LIKELY diagnosis?
   1. Mesothelioma
   2. Pleural calcification
   3. Pulmonary alveolar microlithiasis
   4. Pulmonary parenchymal calcification
   5. Pulmonary tuberculosis with parenchymal and pleural calcification
**Answer** - 2. X ray shows peripheral opacity with plaque like calcification characteristic of pleural calcification.

48. What is the **MOST LIKELY** diagnosis?
   1. ILD
   2. Miliary tuberculosis
   3. Bronchopneumonia
   4. Cardiogenic pulmonary edema
   5. Aspiration pneumonia

**Answer:** - 1. Chest x ray shows reticulonodular opacity predominantly in lower and mid zones with apicobasal gradient characteristic of ILD.

49. What is the **MOST LIKELY** diagnosis?
1. Lung parenchymal calcification
2. Multiple lung secondaries
3. Multiple Arteriovenous malformations
4. Miliary tuberculosis
5. Rheumatoid nodules

**Answer**: 1. Most common cause for lung parenchymal calcification is healed granulomatous disease. Majority are asymptomatic.

50. What is the radiological appearance?
1. Tree in bud appearance
2. Air bronchogram sign
3. Hilum overlay sign
4. Spinnaker sign
5. Doughnut sign

**Answer**: 1.

51. What is the radiological sign?
1. Continuous diaphragm sign
2. Deep sulcus sign
3. Hilum overlay sign
4. Cervicothoracic sign
5. Spinnaker sign

**Answer**: 2. This sign is highly suggestive of pneumothorax. Deep sulcus sign is seen in bed side chest x ray where the diaphragm is pushed down due to the pneumothorax due to the recumbent position.
Section 3

Multiple Choice Questions
**Bronchology**

1. Which of the following is **LEAST LIKELY** complication of diagnostic Bronchoscopy?
   A. Hypoxia
   B. Cardiac arrhythmia
   C. Hypercapnia
   D. Hemoptysis
   E. Pneumothorax

**Answer** – C. Hypercapnia can occur during bronchoscopy if the patient is given liberal supplemental oxygen, patients on mechanical ventilation or noninvasive ventilation if appropriate ventilatory settings are not done during bronchoscopy. However, this is rare in routine bronchoscopy.

2. Most common indication for **DIAGNOSTIC** bronchoscopy is ---
   A. Suspected bronchogenic carcinoma
   B. Solitary pulmonary nodule
   C. Unresolving pneumonia
   D. Diffuse lung disease of unknown etiology
   E. Evaluation of hemoptysis

**Answer** – A

3. EBUS is most commonly used for ---
   A. Diagnosis of lung cancer
   B. Staging of lung cancer
   C. To detect the extent of trans bronchial spread of tumor
   D. Biopsy/FNAC from peripheral lung mass
   E. For early detection of carcinoma insitu

**Answer** – B.

4. EBUS TBN A and conventional TBN A are of equal efficacy in sampling which of the following nodal station?
   A. Station 4L
   B. Station 5
   C. Station 7
   D. Station 8
   E. Station 10

**Answer** – C.

5. Which is a **WRONG** statement about CT virtual bronchoscopy?
   A. Noninvasive procedure
   B. Can’t detect early mucosal changes
   C. Can’t accurately differentiate between tumor and mucous plug
   D. Can be done in patients unfit for bronchoscopy
   E. Can't visualize a bronchus beyond the level of endobronchial obstruction

**Answer** – E.

6. A 65-year-old chronic smoker admitted with recurrent pneumonia right lower lobe with hemoptysis and chronic cough. What is the next **DIAGNOSTIC** investigation?
   A. Ultrasound of right hemithorax
   B. Bronchoscopy
   C. CT scan thorax
   D. Sputum examination for AFB
   E. Sputum culture and sensitivity
Answer – B. These symptoms with recurrent pneumonia in the same lobe is highly suggestive of endobronchial lesion, most likely bronchogenic carcinoma. Hence bronchoscopy is the next DIAGNOSTIC investigation.

7. Which of the following symptom is LEAST LIKELY in eventration of diaphragm?
   A. Chest pain
   B. Palpitation
   C. Chronic Cough
   D. Breathlessness
   E. Hemoptysis

Answer – E. Eventration can lead to pressure on heart, mediastinal shift or displacement of heart which can sometimes lead to palpitation.

8. In which of the following condition bronchoscopy is LIKELY to be useful for diagnosis?
   A. Peripheral solitary pulmonary nodule less than 2 cm in diameter
   B. Isolated, unexplained pleural effusion
   C. Persistent asthma like symptoms with chronic cough
   D. Hemoptysis with a non-localizing chest radiograph
   E. Unexplained breathlessness

Answer – C. Persistent asthma like symptoms with chronic cough is indicative of airway or endobronchial lesion.

9. Thoracic ultrasound is NOT useful in the detection of ---
   A. Mediastinal mass
   B. Lower lobe consolidation
   C. Pneumothorax
   D. Cardiogenic pulmonary edema
   E. Pleural thickening

Answer - A

10. Which lobe is SPARED in bronchial thermoplasty
    A. Right upper lobe
    B. Lingula
    C. Middle lobe
    D. Left lower lobe
    E. Right lower lobe

Answer – C

11. Which of the following is NOT a complication of bronchial thermoplasty
    A. Exacerbation of Asthma
    B. Bronchomalacia
    C. Hemoptysis
    D. Hypoxemia
    E. Infection

Answer – B

12. In which of the following condition airway stent is better avoided?
    A. Central airway obstruction due to a benign/malignant lesion not fit for resection
    B. Extrinsic compression
    C. Destroyed lung beyond the level of bronchial obstruction.
    D. Sealing of airway fistula
E. Tracheobroncomalacia  
**Answer** C. If the lung is destroyed beyond the level of bronchial obstruction patient will continue to have symptoms even after stenting. In this case surgical resection is a better option.

13. Which is NOT a common complications of airway stent?  
A. Stent Migration, Infection, Granuloma formation  
B. Breakage of metal fibers  
C. Hemothypsis  
D. Airway rupture  
E. Airway obstruction-due to secretion impaction/granuloma formation  
**Answer – D.**

14. Which is NOT a complication of FNAC from lung?  
A. Pneumothorax  
B. Bleeding  
C. Injury to adjacent structures  
D. Needle track metastasis  
E. Broncho stenosis  
**Answer - E**

15. Which of the following bronchoscopic intervention leads to IMMEDIATE improvement in bronchial obstruction?  
A. Brachytherapy  
B. Cryotherapy  
C. Argon plasma coagulation  
D. Photodynamic therapy  
E. Bronchial thermoplasty  
**Answer – C**

16. Which of the following intervention is NOT used to reduce dyspnea in COPD?  
A. Bronchoscopic valve placement  
B. Bronchial fenestration  
C. Biological lung volume reduction  
D. Bronchial thermoplasty  
E. Bullectomy  
**Answer – D.** Bronchial thermoplasty is done in bronchial asthma.

17. Which is NOT a complication of balloon bronchoplasty?  
A. Bleeding  
B. Mucosal tear  
C. Air embolism  
D. Airway rupture  
E. Pain  
**Answer – C**

18. Which interventional bronchoscopy procedure is contraindicated in a patient critical central airway obstruction?  
A. Electrocautery  
B. Cryotherapy  
C. Laser  
D. APC (argon plasma coagulation)  
E. Stenting
Answer – B. Cryotherapy alone does not relieve obstruction immediately. Besides following cryotherapy sometimes tissue swelling, bleeding, inflammation and edema can occur which can worsen the airway obstruction. Hence cryotherapy alone is contraindicated critical central airway obstruction.

19. Which bronchoscopic intervention is NOT useful for relieving airway stenosis?
   A. Dilatation, Laser
   B. Electro surgery
   C. Argon plasma coagulation
   D. Stenting
   E. Brachytherapy

Answer – E. Brachytherapy is for treatment of malignancy.

20. Which of the following usually DOES NOT lead to difficult or painful insertion of the flexible bronchoscope through the upper airway?
   A. Deviation of nasal septum
   B. Nasal polyps
   C. Hypertrophy of the nasal turbinates
   D. Enlarged adenoids
   E. Nasal spur

Answer – D.

21. Which of the following is NOT a Bronchoscopic sign of inoperability in Lung cancer?
   A. Vocal cord paralysis
   B. Tumor in left main bronchus
   C. Tracheal involvement
   D. Carinal involvement
   E. Tumor in within half centimeter of carina

Answer – B. Left main bronchus is about 5 cm in length. Hence if the tumor is beyond one cm of carina it may be operable.

22. Which of the following is NOT essential prior to flexible bronchoscopy?
   A. Medication history
   B. CT scan thorax
   C. Chest radiography
   D. History of allergy to drugs
   E. ECG

Answer – B. CT scan is preferable but not essential.

23. Which of the following cancers is LEAST LIKELY to extend to trachea?
   A. Nasopharyngeal carcinoma
   B. Bronchogenic carcinoma
   C. Esophageal cancer
   D. Thyroid cancer
   E. Laryngeal cancer

Answer – A.

24. Which is MOST COMMON type of tracheal tumor?
   A. Squamous cell carcinoma
   B. Adenoid cystic carcinoma
   C. Carcinoid
   D. Chondroma
   E. Papilloma
Answer – A.
25. Which is a **WRONG** statement about adenoid cystic carcinoma of trachea?
   A. Commonly arises at the distal portion of the trachea
   B. Arises from sub mucosal glands of the tracheobronchial tree
   C. Most common tumor arising from salivary glands
   D. MDCT is useful to detect the extent of the tumor
   E. Metastasize early
   **Answer – E.** It is a slow growing tumor and metastasis is not common.

26. Which is a **WRONG** statement regarding Adenoid cystic carcinoma of trachea?
   A. Strongly associated with smoking
   B. Surgery is the treatment
   C. Slow growing
   D. Can metastasize to lungs
   E. Diagnosis often delayed
   **Answer – A.

27. Which of the following is **NOT** considered as a “poor technique” when handling a flexible bronchoscope?
   A. Exerting excessive pressure with one's fingers on the patient's nostril or cheek.
   B. Twisting the inserting end of the tube while advancing the scope
   C. Rotating the entire instrument along its entire transverse axis.
   D. Attempting to pass biopsy forceps through a fully flexed distal extremity of the bronchoscope
   E. Keeping the bronchoscope “in the midline” of the airway lumen throughout as much of the procedure as possible.
   **Answer – E

28. In which of the following condition auto florescent bronchoscopy is **NOT** useful?
   A. Early detection of Lung cancer
   B. Follow up after surgery for lung cancer
   C. Screening for high risk lung cancer cases
   D. Early detection of peripheral lung lesions
   E. Detection of severe bronchial dysplasia
   **Answer - D

29. Which is a **WRONG** statement regarding Stridor?
   A. Inspiratory Stridor suggests a laryngeal obstruction.
   B. Expiratory Stridor suggests tracheobronchial obstruction.
   C. Biphasic Stridor suggests a subglottic or glottic anomaly.
   D. Acute Stridor is a medical emergency
   E. Most common site of obstruction in Stridor is lower respiratory tract
   **Answer –

30. Which is the **MOST COMMON** malignancy causing hoarseness of voice?
   A. Esophageal carcinoma
   B. Bronchogenic carcinoma
   C. Lymphoma
   D. Thyroid carcinoma
   E. Thymic carcinoma
   **Answer – B.
31. Which of the following is **MOST COMMON** complication of diagnostic Bronchoscopy?  
   A. Hypoxia  
   B. Cardiac arrhythmia  
   C. Fever and chills  
   D. Hemoptysis  
   E. Pneumothorax  
   **Answer – A.**

32. Which of the following is **NOT** essential prior to flexible Bronchoscopy in an elderly COPD patient?  
   A. Platelet count  
   B. Chest radiography  
   C. Measuring oxygen saturation  
   D. History of allergy to drugs  
   E. ECG  
   **Answer – A**

33. Which is **NOT** a contraindication to Photodynamic therapy in lung cancer?  
   A. Porphyria  
   B. Central airway obstruction  
   C. Tumor invading vessels/Esophagus  
   D. Carcinoma in situ  
   E. Small cell lung cancer  
   **Answer – E.**

34. Which is a **WRONG** statement regarding the effects of flexible Bronchoscopy on cardiovascular hemodynamics?  
   A. During bronchoscopy oxygen consumption increases.  
   B. During bronchoscopy cardiac index increases  
   C. During bronchoscopy correlations have been noted between presence of arrhythmias and depth of oxygen desaturation.  
   D. Impact of flexible bronchoscopy on cardiovascular function and oxygen saturation ends immediately when the bronchoscope is removed from the airways.  
   E. Heart rate usually increases during Bronchoscopy  
   **Answer – D**

35. Which is a **WRONG** statement?  
   A. Fever and chills may occur as late as 6-8 hours after bronchoscopy.  
   B. Continuous suction during bronchoscopy can reduce tidal volume  
   C. Continuous suction during bronchoscopy can exacerbate pre existing hypoxemia.  
   D. Most bronchoscopy-related pneumothorax occurs several hours after the procedure.  
   E. Conscious sedation can increase the likelihood of post-procedure hypoxemia  
   **Answer – D.** Most of bronchoscopy related significant pneumothorax occurs within half to 2 hours after the procedure.

36. Bleeding-related morbidity and mortality after flexible Bronchoscopy is most frequently caused by --  
   A. Massive pulmonary hemorrhage  
   B. Hypoxemia and respiratory insufficiency resulting from filling of ventilatory dead space  
   C. Dysrhythmias due to hypovolemia  
   D. Hypotension  
   E. Hypoxia due to blood loss  
   **Answer – B**
37. Which of the following is the **MOST COMMON** indication for bronchoscopy in suspected tuberculosis?
   A. To rule out other diseases which mimic TB
   B. Symptoms and chest x ray not typical
   C. Sputum AFB smear negative
   D. Gene X-pert negative
   E. Cavitating lesion in chest x ray

**Answer:** A. Many other diseases can mimic TB clinically and radiologically. When diagnosis is not certain bronchoscopy is indicated in such cases.

38. Which is a **WRONG** statement regarding tracheal tumors?
   A. Smoking is a known risk factor for squamous cell carcinoma of trachea.
   B. Primary tumors of the trachea are more common than secondary tracheal tumors.
   C. Diagnosis of tracheal tumors is usually delayed due to non-specific symptoms.
   D. Symptoms tracheal tumor often mimic that of obstructive airway diseases
   E. Squamous cell carcinoma of trachea can present with hemoptyis.

**Answer – B.**

39. A 56-year-old man admitted with stridor. Which of the following is **LEAST LIKELY** to cause stridor?
   A. Tracheal stenosis
   B. Upper airway edema
   C. Foreign body obstruction in major airway
   D. Bronchogenic carcinoma
   E. Laryngeal tumor

**Answer-D.** Stridor is a rare symptom in bronchogenic carcinoma. Can occur when the tumour extends to carina or trachea blocking the major airways.

40. A 64-year-old male patient is diagnosed to have cavitating bronchogenic carcinoma. What is the **MOST LIKELY** cell type?
   A. Squamous cell carcinoma
   B. Adenocarcinoma
   C. Small cell carcinoma
   D. Large cell carcinoma
   E. Poorly differentiated carcinoma

**Answer - A**

41. In which of the following condition deep sulcus sign is seen?
   A. Pneumothorax
   B. Pleural effusion
   C. Emphysematous bulla
   D. Liver abscess
   E. Pulmonary embolism
Answer: A. Deep sulcus sign is seen on a supine chest radiograph. It is a sign of pneumothorax. In the supine position, air rises to the anterior and inferior portion of the thorax, first medially and then laterally. This air may cause the costophrenic angle on the side of the pneumothorax to project more inferiorly than the costophrenic angle on the opposite side. Radiologically this is seen as deep, hyper translucent, ipsilateral costophrenic angle on supine chest radiograph. Double diaphragm sign may also be seen on supine radiographs in patients with pneumothorax due to an interface of the dome (highest part of the hemi diaphragm) and the anterior costophrenic sulcus and the hemi diaphragm.

42. In which of the following symptom evaluation bronchoscopy is LEAST LIKELY to be useful
   A. Hemoptysis
   B. Chronic cough
   C. Breathlessness
   D. Hoarseness of voice
   E. Bronchorrea

Answer – C.
1. Bilateral hilar lymphadenopathy is **LEAST LIKELY** in ---
   A. Tuberculosis
   B. Sarcoidosis
   C. Silicosis
   D. Adenocarcinoma of lung
   E. Lymphoma
   **Answer – D**

2. Which of the following **DOES NOT** cause total opaque hemithorax?
   A. Pneumonectomy
   B. Massive pleural effusion
   C. Agenesis of lung
   D. Pleural thickening
   E. Total lung collapse
   **Answer – D**

3. What is the **DIAGNOSTIC** investigation in total lung collapse due to suspected endobronchial lesion?
   A. CT scan thorax
   B. Bronchoscopy
   C. USG chest and abdomen
   D. Thoracoscopy
   E. MRI thorax
   **Answer – B**

4. Which is a **WRONG** statement regarding pulmonary calcification?
   A. Most common cause for calcification is granulomatous disease
   B. Can cause hemoptysis
   C. Usually asymptomatic
   D. Dystrophic calcification more common than metastatic calcification
   E. Pulmonary metastases never show calcification
   **Answer** – E. Secondaries in the lung from sarcomas, mucinous adenocarcinoma of colon, ovary, breast, medullary carcinoma of thyroid, giant cell tumor of the bone and treated case of choriocarcinoma may show calcification. Calcification in metastases can arise through a variety of mechanisms: bone formation in tumors of osteoid origin, calcification and ossification of tumor cartilage, dystrophic calcification and ossification of tumor cartilage, dystrophic calcification and mucoid calcification.
5. Which is a **WRONG** statement regarding soft tissue shadow in chest x-ray?
   A. Can lead to change in density
   B. Can mimic a tumor
   C. Physical examination will be useful
   D. PA and Lateral view may be helpful
   E. Always unilateral

   **Answer – E**

6. Which of the following is **MOST LIKELY** to cause soft tissue abnormality in chest x-ray?
   A. Lipoma
   B. Mastectomy
   C. Surgical emphysema
   D. Nipple
   E. Unilateral gynacomastia

   **Answer – D**. Nipple shadows may be apparent on ~7.5% (range 3.5-11%) of frontal chest x-rays. Nipple shadow are usually bilateral and symmetric with "fuzzy" margins or radiolucent "halo". They have sharp lateral border and poorly defined medial border (may be present only on PA projections). In males these nodules are usually seen between the 5th and 6th ribs anteriorly. In females at the inferior aspect of the breast shadow. Prominent nipples may be visible on a lateral projection. Size is 5 to 15mm in diameter. Usually the size shape and position is consistent. Nipple shadow has to be differentiated from solitary pulmonary nodule. However, if there is doubt whether a nodular opacity represents a nipple shadow or not, a repeat chest x-ray with nipple markers should be performed.

7. Which of the following is an **ABNORMAL** density in chest x-ray?
   A. Bone
   B. Metal
   C. Soft tissue
   D. Air
   E. Fluid

   **Answer – B.**

8. Which of the following is the **BEST** investigation for evaluation of extent of soft tissue lesion?
   A. Chest x ray
   B. Physical examination
   C. CT scan
   D. MRI
   E. Ultra sound

   **Answer – D**
9. Which of the following radiological sign is NOT pathological?
   A. Air bronchogram sign
   B. Thymic sail sign
   C. Cervico thoracic sign
   D. Deep sulcus sign
   E. Flat waist sign

   **Answer** – B. Thymic sail sign represents a triangular-shaped inferior margin of the normal thymus seen on a neonatal frontal chest radiograph. It is more commonly seen on the right side, but can also be bilateral. It is seen in 3-15% of all cases. This sign should not be confused with the spinnaker sail sign.

10. Which of the following sign is NOT seen in pulmonary embolism?
    A. Fleishner sign
    B. Hampton hump
    C. Westermark’s sign
    D. Knuckle sign
    E. Spinnaker sail sign

   **Answer** – E. The spinnaker sail sign (also known as the angel wing sign) is a sign of pneumomediastinum seen on neonatal chest radiographs. The thymus gets outlined by air with each lobe being displaced laterally. Named for its visual resemblance to the headsail of a boat, the spinnaker sail sign occurs with a spontaneous anterior pneumomediastinum in neonates and usually resolves without specific treatment.

11. Which cardiac valve is highest in chest x ray?
    A. Aortic valve
    B. Mitral valve
    C. Tricuspid valve
    D. Pulmonary valve
    E. Aortic and pulmonary valve both at same level.

   **Answer** – D

13. Which Valvular disease **MOST COMMONLY** leads to cardiomegaly in chest x ray?
    A. Aortic valve
    B. Mitral valve
    C. Tricuspid valve
    D. Pulmonary valve
    E. Aortic and mitral valve

   **Answer** – A. Most common cause for cardiomegaly in chest x ray is left ventricular enlargement which in turn is due to aortic valve disease.
14. Which of the following is the **MOST IMPORTANT** differentiating feature in chest imaging between pulmonary lymphangitic carcinomatosis and cardiogenic pulmonary edema?
   A. Kerley B lines
   B. Thickening of fissures
   C. Pleural effusion
   D. Unilateral lesion
   E. Hilar and or mediastinal adenopathy

**Answer** – E. Seen in PLC.

15. Which of the following is **LEAST LIKELY** to mimic hydropneumothorax in chest x ray?
   A. Large lung abscess
   B. Large infected bulla/cyst
   C. Hydatid cyst
   D. Eventration of diaphragm
   E. Diaphragmatic hernia

**Answer** – C. Unruptured hydatid cyst will appear as homogenous rounded opacity without air fluid level.

16. Which is **NOT** a sign of traumatic rupture of diaphragm?
   A. Elevated hemi diaphragm
   B. Distortion of diaphragmatic margin
   C. Decreased movement of the diaphragm in mechanically ventilated patients
   D. Abdominal contents in the thorax
   E. Nasogastric tube seen in the thorax

**Answer** – C. Diaphragm movement in mechanically ventilated patients is not a reliable sign.

Which of the following is **NOT** a radiological feature of cardiogenic pulmonary edema?
   A. Increase in cardio-thoracic ratio
   B. Peri-bronchial cuffing
   C. Kerley B lines
   D. Kerley A lines
   E. Massive pleural effusion

**Answer** – E. Pleural effusion in cardiogenic pulmonary edema is usually bilateral small effusion, never massive.

18. Which of the following radiological feature is **NOT** useful to differentiate cardiogenic pulmonary edema from ARDS?
   A. Pleural effusion
B. Cardiomegaly  
C. Kerley B lines  
D. Air bronchogram  
E. Substantial radiological improvement in 24 hours  

Answer – D

19. Which of the following is **NOT** a direct radiological sign of collapse?  
   A. Displacement of interlobar fissures  
   B. Loss of aeration  
   C. Elevation of diaphragm  
   D. Crowding of vessels  
   E. Crowding of bronchi  

Answer – C. This is an indirect sign of collapse.

20. Which is the **MOST COMMON** cause for collapse in debilitated patients?  
   A. Malignancy  
   B. Dentures  
   C. Mucous plug  
   D. Aspiration  
   E. Stenosis/stricture of a bronchus.  

Answer – D

21. Which of the following is **LEAST LIKELY** radiographic pattern in hypersensitivity pneumonitis?  
   A. Hilar lymphadenopathy  
   B. Small bilateral nodules  
   C. Focal consolidation  
   D. Reticular lesions  
   E. Bilateral ground-glass opacities  

Answer – A.

22. Which of the following is **LEAST LIKELY** to cause nodular opacities in HRCT?  
   A. Sarcoidosis  
   B. Silicosis  
   C. Coal worker's pneumoconiosis  
   D. Pulmonary histiocytosis X  
   E. ABPA  

Answer – E.
Which of the following is LEAST LIKELY to cause unilateral raised dome?

A. Lower lobectomy
B. Sub diaphragmatic effusion
C. Liver abscess
D. Ascitis
E. Phrenic nerve paralysis

**Answer – D.**

24. Which of the following is the investigation of choice to see the movement of diaphragm?

A. Chest x ray
B. CT scan
C. USG hemithoax and abdomen
D. Fluoroscopy
E. MRI

**Answer – C.** Dynamic imaging is required to visualized the diaphragmatic movement which is best done by USG.

25. Which is NOT a radiological feature of mediastinal lesion?

A. Hilum overlay sign
B. No air bronchogram
C. Acute margin with the lung
D. Obliterated cardiophrenic angle
E. Obliterated retrosternal clear space

**Answer – C.**

26. Tree in bud appearance was initially described in which of the following condition?

A. Cystic fibrosis
B. Rheumatoid arthritis
C. Pulmonary tuberculosis
D. Viral pneumonia
E. Allergic bronchopulmonary aspergillosis (ABPA)

**Answer – C**

27. Split pleura sign is seen in ---

A. Mesothelioma
B. Malignant pleural effusion
C. Chylothorax
D. Empyema
E. Chest wall tumor invading the pleura

**Answer – D**
28. Which is NOT a radiological sign of pleural effusion?
   A. Blunting of CP angles
   B. Homogenous opacity
   C. Shift of mediastinum to opposite side
   D. Air bronchogram
   E. Peripheral opacity
   Answer – D. Air bronchogram is a sign of lung parenchymal consolidation.

29. Which is NOT a radiological feature of benign lesion?
   A. Smooth well defined borders
   B. Presence of diffuse calcification
   C. Large size
   D. Stable over a period of 2 years
   E. Polygonal shape
   Answer – C. Larger the size greater the chances of malignancy.

30. Which of the following is a DEFINITE SIGN of malignancy in CT scan image in a pleural thickening?
   A. Circumferential pleural thickening
   B. Parietal pleural thickening more than 1 cm
   C. Nodularity
   D. Mediastinal pleural involvement
   E. Invasion of chest wall
   Answer – E. All the other signs suggest possibility of malignancy.

31. Which radiological change is NOT seen in emphysema?
   A. Hyper translucency
   B. Hyperinflation
   C. Bulla
   D. Pruning of main pulmonary arteries
   E. Flattening of diaphragm
   Answer – D. Main pulmonary arteries may be enlarged due to secondary PAH.

32. Which of the following is the MOST COMMONLY visualized accessory fissures of the lung?
   1. Left inferior accessory fissure
   2. Superior accessory fissure
   3. Left horizontal fissure
   4. Azygos fissure
   5. Right inferior accessory fissure
   Answer – 5.
33. Which is a **WRONG** statement regarding anatomical variations in bronchial division?
   A. Variations are more common in right upper lobe
   B. Tracheal bronchus can lead to complications during intubation
   C. Majority are asymptomatic
   D. Accessory cardiac bronchus commonly occurs on left side
   E. Anomalous bronchi are usually not pathologic

**Answer** – D. Accessory cardiac bronchus (ACB) is a rare anatomic variant of the tracheobronchial tree, arising from the medial aspect of the bronchus intermedius on the right side.

34. Which is the **MOST COMMON** indication for bone scan?
   A. Paget's disease
   B. Arthritis
   C. Osteomyelitis
   D. Bony metastasis
   E. Avascular necrosis

**Answer** – D

35. In which of the following condition comparison of deep inspiratory and expiratory films **MAY NOT** be useful?
   A. Airway obstruction due to foreign body
   B. Small pneumothorax
   C. Lobar consolidation
   D. Emphysematous bulla
   E. Air trapping

**Answer** – C

36. Which of the following is **NOT** a risk factor developing obstructive collapse?
   A. Age less than 3 years
   B. Age more than 20 years
   C. Smoking
   D. Decreased level of consciousness
   E. Dehydration

**Answer** – B. Dehydration will lead to thick secretion which in turn may lead to airway obstruction and collapse.

37. Which is **NOT** a radiological feature of cavitating malignancy?
   A. Majority in upper lobes
   B. Usually single
C. Thick walled cavity  
D. Surrounding consolidation  
E. Eccentric cavitation  

**Answer – D.** Surrounding consolidation is a feature of infective cavity.

38. Which is **NOT** a radiological characteristic of tubercular cavity?  
A. More common in the anterior segment of upper lobe  
B. Adjacent tree in bud appearance may be found in CT  
C. Surrounding infiltrates  
D. No/minimal air-fluid level  
E. Single or multiple with varying size  

**Answer – A.** More common in the posterior segment of upper lobe. Bronchogenic carcinoma is more common in anterior segment of upper lobe.

39. Which of the following infection is **LEAST LIKELY** to mimic tubercular cavity radiologically?  
A. Klebsiella pneumonia  
B. Pseudomonas  
C. Streptococcus pneumoniae  
D. Melioidosis  
E. Staph aureus  

**Answer – C**

40. Which is a **WRONG** statement?  
A. Hilum overlay sign indicates mass is anterior or posterior to hilum  
B. Hilum convergence sign indicates enlarged pulmonary artery  
C. Hila consist of vessels, bronchi and lymph nodes  
D. Pulmonary arterial hypertension may cause bilateral symmetrical hilar enlargement  
E. Right main bronchus can be compressed by enlarged cardiac chambers/vessels  

**Answer – E.** Anatomically there are no vessels or cardiac chamber close to right main bronchus. Besides right main bronchus length is 0.5cm and hence does not usually get compressed by external pressure. Left main bronchus can be compressed by enlarged cardiac chambers/vessels.

41. Which of the following condition is **LEAST LIKELY** to cause air fluid level in chest X-ray?  
A. Eventration  
B. Hiatus hernia  
C. Bokdalek hernia  
D. Carcinoma of esophagus  
E. Achalasia cardia  

**Answer – D.**
42. Which is NOT a sign of left lower lobe collapse?
   A. Silhouetting of diaphragm
   B. Shift of oblique fissure
   C. Silhouetting of ascending aorta
   D. Shift of heart to left side
   E. Shift of hilum

   **Answer – C.** Ascending aorta is on the right side.

43. Which of the following DOES NOT lead to unilateral hyper translucency in CXR?
   A. Rotated film
   B. Absence of soft tissue on one side
   C. Giant bulla
   D. Pneumothorax
   E. Kyphoscoliosis

   **Answer – E**

44. Which of the following is NOT a radiological sign of malignancy?
   A. Speculated margins
   B. Involvement of surrounding structures
   C. Contrast enhancement
   D. Polygonal shape and a three-dimensional ratio > 1.78
   E. Corona radiata sign

   **Answer – D.** This feature is suggestive of benign lesion.

45. Which of the following is NOT a cause for opaque hemi thorax with loss of volume?
   A. Total lung collapse
   B. Post pneumonectomy
   C. Consolidation of one lung
   D. Pulmonary genesis
   E. Pulmonary aplasia

   **Answer- C.**

46. What is the ideal position of ET tube in Chest x ray?
   A. Neck flexed: 7 cm (± 2 cm) from carina
   B. Neck neutral: 5 cm (± 2cm) from carina
   C. Neck extended: 3 cm (± 2cm) from carina
   D. Neck flexed: 9 cm (± 2 cm) from carina
   E. Neck extended: 9 cm (± 2cm) from carina

   **Answer - B**
47. Which of the following is LEAST LIKELY to cause cystic lung disease in CT scan?
   A. Pulmonary Langerhans cell histiocytosis
   B. Lymphocytic interstitial pneumonia
   C. Lymphangitic carcinomatosis
   D. Birt–Hogg–Dubé syndrome
   E. Amyloidosis

**Answer:** C

48. Which is NOT a HRCT feature in pulmonary Langerhans cell histiocytosis (PLCH)?
   A. Temporal heterogeneity
   B. Cystic and nodular lesions
   C. Lesions more in mid and upper zones
   D. Sparing of costophrenic angles
   E. Decrease in lung volume

**Answer:** E. Lung volume may increase in PLCH. Characteristic HRCT features in PLCH are bilateral and symmetrical, predominantly upper and mid-lung zone, nodules up to 1 cm in size. Nodules are often irregular in appearance and with more advanced disease, may extend into the lower lung zones. The costophrenic angles are typically spared. With disease progression, reticular and cystic changes may be observed, and nodules may regress. Lung volumes are typically normal or increased. PLCH is one of the few lung diseases associated with increased interstitial markings and normal or large lung volumes. High resolution CT (HRCT) may be diagnostic in PLCH, particularly when a combination of cysts and nodules in a characteristic upper lung zone distribution is observed. If this pattern is seen in a patient with a typical history, lung biopsy is frequently not required to make the diagnosis. When only nodules or only cysts are present, the differential diagnosis is broader. Cysts alone may be due to pneumatocele (eg, from *Pneumocystis jirovecii* infection), Lymphangioliomyomatosis (LAM) or bronchiectasis. Differential diagnosis of the upper zone nodular changes of PLCH includes sarcoidosis, silicosis, tuberculosis or metastatic disease. These latter diagnoses are typically associated with perilymphatic or random distributions of the nodules rather than the more typically centrilobular distribution of PLCH nodules. PLCH cysts are usually irregular in shape and are believed to be formed from the coalescence of nodules. As with nodules, sparing of the lung bases is the general rule. Advanced PLCH may progress to honeycombing and fibrotic changes.

49. Which of the following is LEAST LIKELY to cause air fluid level in chest x ray?
   A. Eventration of diaphragm
   B. Achalasia cardia
   C. Para esophageal type of hiatus hernia
   D. Ruptured hydatid cyst
   E. Infected bulla

**Answer** – C.
50. Which of the following is LEAST LIKELY to cause cavity in the lungs?
   A. Pulmonary Tuberculosis
   B. Viral pneumonia
   C. Fungal infection
   D. Klebsiella pneumonia
   E. Melioidosis

   Answer – B

51. Which of the following is the MOST COMMON cause for lung parenchymal and mediastinal lymph node calcification?
   A. Healed granulomatous disease
   B. Chronic renal failure
   C. Hemosiderosis
   D. Silicosis
   E. Hyperparathyroidism

   Answer – A.

52. A 54 year old lady admitted with complete heart block with bilateral ground glass opacities in chest x-ray. She has no evidence of ischemic heart disease. Her ECHO is normal. What is the MOST LIKELY diagnosis?
   A. Scleroderma
   B. Relapsing polychondritis
   C. Sarcoidosis
   D. Rheumatoid arthritis
   E. SLE

   Answer – C. Cardiac involvement is characteristic of sarcoidosis.

53. Central bronchiectasis is NOT seen in
   A. Cystic fibrosis
   B. Allergic bronchopulmonary aspergillosis
   C. Primary ciliary dyskinesia
   D. Williams Campbell syndrome
   E. Congenital tracheobronchomegaly

   Answer – C

54. PET CT is NOT useful in ---
   A. Staging of lung cancer
   B. Monitoring the efficacy of treatment in lung cancer
   C. Definitive diagnosis of lung cancer

   Answer – C
D. Detecting secondaries in lung cancer
E. Planning thoracic radiation in lung cancer

Answer - C

55. Which is NOT a feature of congestive cardiac failure in chest x ray?
   A. Bilateral pleural effusion
   B. Dilatation of right atrium
   C. Increase in cardiothoracic ratio
   D. Interstitial edema
   E. Pulmonary venous congestion upper lobe

Answer – B.

56. Which of the following is LEAST LIKELY to mimic hydropneumothorax in chest x ray?
   A. Large lung abscess
   B. Large infected bulla
   C. Large cavity with fluid level
   D. Large cavitating mass
   E. Large infected cyst

Answer – D. In cavitating mass usually cavity is eccentric and large air fluid level is unusual

57. In which of the following condition CT scan thorax is NOT essential in chronic cough with normal chest x-ray with no obvious cause for cough?
   A. Occasional hemoptysis in an elderly smoker
   B. Progressive dyspnea
   C. Significant weight loss
   D. Fever on and off
   E. Symptoms suggestive of allergic rhinitis

Answer: E. If there is allergic rhinitis then most likely the cause for cough is allergic rhinitis. In such a case allergic rhinitis needs to be properly treated first which may relieve cough. Further evaluation may be done if cough persists despite treating allergic rhinitis.

58. Which is the MOST COMMON cause for cavity in the lungs?
   A. Squamous cell carcinoma
   B. Fungal infection
   C. Tuberculosis
   D. Klebsiella pneumonia
   E. Melioidosis

Answer – C.

59. Which of the following radiological feature is almost a sure sign of malignancy?
   A. Surrounding infiltrates
B. Erosion of adjacent bone
C. Ill defined borders
D. Associated mediastinal adenopathy
E. Associated pleural effusion

**Answer – B**

60. Reversed halo sign is described in ---
   A. Hypersensitivity pneumonitis
   B. Sarcoidosis
   C. Lymphoma
   D. RB-ILD
   E. Organizing pneumonia

**Answer-E.** Reversed halo sign, also known as the atoll sign, is defined as central ground-glass opacity surrounded by denser consolidation of crescentic shape (forming more than three-fourths of a circle) or complete ring of at least 2 mm in thickness.

61. Which is a **WRONG** statement regarding cervico thoracic sign
   A. Visualization of a lesion above the level of the clavicle
   B. Indicates the abnormality is located posteriorly.
   C. Excludes anterior mediastinal lesion
   D. Excludes upper lobe lesion
   E. Can be seen in multi nodular goiter

**Answer-D.** Upper lobe extends above the level of clavicle. Hence in upper lobe lesion Cervico thoracic sign may be seen.

62. Which is a **WRONG** statement about pulmonary lymphangitic carcinomatosis?
   A. More common in Adenocarcinoma
   B. Lesions are usually bilateral
   C. In localized PLC, most often primary is in lungs
   D. Lesions are more in upper lobes
   E. May mimic cardiogenic pulmonary edema

**Answer –D.** Lesions are usually more in lower lobes

63. Anatomical variation in fissures will **NOT** lead to ---
   A. Chest radiographic abnormalities
   B. Changes in mediastinal shadow in chest x ray
   C. Alteration in the pattern of lung collapse
   D. Difficult intubation
   E. Changes in the extent of pneumonic consolidation

**Answer -D**
64. Which is a **WRONG** statement regarding saber sheath trachea?
   A. Extra-thoracic portion of the trachea is not narrowed.
   B. Tracheal index > 0.5
   C. Due to increased intrathoracic pressure
   D. More common in severe COPD
   E. It has high sensitivity to diagnose COPD

**Answer – E.**

65. A 75 year old female with uncontrolled diabetes, admitted with 10 days history of fever and cough. Chest x ray showed right upper lobe cavity without any air fluid level. Which is the **LEAST LIKELY** diagnosis?
   A. Melioidosis
   B. Fungal pneumonia
   C. Pulmonary tuberculosis
   D. Staphylococcal pneumonia
   E. Klebsiella pneumonia

**Answer - B**

66. Which of the following disease may radiologically mimic pulmonary TB?
   A. Rheumatoid arthritis
   B. Sarcoidosis
   C. Wegener's granulomatosis
   D. Ankylosing spondylitis
   E. Systemic lupus erythematosus

**Answer - C**

67. A 70 year old man, chronic smoker admitted with chronic cough, chest pain and recurrent hemoptysis. Which of the following chest x ray feature is highly suggestive of intra thoracic malignancy?
   A. Total lung collapse on one side
   B. Homogenous opacity without air-bronchogram
   C. Parenchymal lesion with mediastinal adenopathy
   D. Parenchymal lesion with pleural effusion
   E. Parenchymal lesion with erosion of adjacent bone

**Answer - E**

68. A 28 year old man admitted for evaluation of a mediastinal mass. Which of the following investigation is **LEAST USEFUL** in diagnosis?
   A. Thoracoscopy
   B. Bronchoscopy
C. Mediastinoscopy  
D. Percutaneous needle aspiration  
E. Estimation of α-Fetoprotein, β-HCG

Answer – B.

69. Which is a **WRONG** statement regarding tree in bud appearance?  
A. Represents endobronchial spread of infection  
B. First described in pulmonary tuberculosis  
C. Multiple areas of Centrilobular nodules with a linear branching pattern is characteristic.  
D. Occurs in proximal airway centered diseases  
E. Best seen on HRCT chest

**Answer** – D. Occurs in distal airway centered and distal pulmonary vasculature centered diseases.

70. Which of the following is **NOT** a radiological sign of pneumothorax?  
A. Central hyper translucent area  
B. Absence of bronchovascular markings in the hyper translucent area  
C. Collapsed visceral pleural line  
D. Shift of mediastinum to opposite side  
E. Hyper inflation of hemithorax

**Answer:** A. Air in pleural cavity is always seen radiologically in the periphery. Peripheral hyper translucent area is the radiological sign of pneumothorax

71. Which radiological signs **NOT** useful to localise a lesion in chest x-ray?  
A. Air bronchogram  
B. Silhouette sign  
C. Cervico thoracic sign  
D. Melting ice cube sign  
E. Extra pleural sign

**Answer** – D. The melting ice cube sign describes the resolution of pulmonary hemorrhage following pulmonary embolism

72. Garland sign is seen in ---  
A. Sarcoidosis  
B. Lymphoma  
C. Interstitial lung disease  
D. Hypersensitivity pneumonitis  
E. Pulmonary Langerhans cell histiocytosis

**Answer-A.**
73. Which is NOT a radiological feature in UIP
   A. Honeycombing
   B. Traction bronchiectasis
   C. Apicobasal gradient
   D. Sub pleural sparing
   E. Reduction in lung volume

   **Answer-D**

74. Which is NOT a radiological feature in NSIP
   A. Sub pleural sparing
   B. Lower lobe predominance
   C. Ground glass opacities
   D. Nodules
   E. Consolidation

   **Answer-B**

75. Head cheese sign is described in ---
   A. Hypersensitivity pneumonitis
   B. Sarcoidosis
   C. Lymphoma
   D. RB-ILD
   E. Pulmonary Langerhans cell histiocytosis

   **Answer-A.**

76. Halo sign is seen in ---
   A. Hypersensitivity pneumonitis
   B. Sarcoidosis
   C. Lymphoma
   D. Angio invasive aspergillosis
   E. RB-ILD

   **Answer-D.**
**Critical care**

1. Which of the following ventilatory strategy should be **AVOIED** in a patient with BPF (Broncho pleural fistula)?
   A. Increase respiratory rate
   B. Low tidal volume
   C. Reduce inspiratory time
   D. High frequency ventilation
   E. Increase PEEP
   **Answer – E.** PEEP will increase the air leak. Hence it should be kept minimum.

2. Which is **NOT** the aim of Lung protective ventilation in ARDS?
   A. To prevent pneumothorax
   B. To prevent alveolar collapse
   C. To prevent hypercapnia
   D. To prevent Pneumomediastinum
   E. To avoid oxygen toxicity
   **Answer-C.** Permissive hypercapnia in Lung protective ventilation in ARDS.

3. Which is **NOT** a complication of mal position of ET tube into right main bronchus?
   A. Hyperinflation of right lung
   B. Collapse of left lung
   C. Hemoptysis
   D. Pneumothorax
   E. Hypoxia
   **Answer – C.**

4. Best investigation to confirm ET tube placement in patients with normal circulation is ---
   A. End-tidal carbon dioxide detection
   B. Direct laryngoscopy
   C. USG neck
   D. Esophageal detector device
   E. Chest radiography
   **Answer – A**
5. Which is a **WRONG** statement?
   A. Tip of the endotracheal tube should be about 5 cm from carina
   B. Tip of the endotracheal tube should be halfway between the clavicles and the carina
   C. Tip of the endotracheal tube may travel up to 2 cm with neck movements
   D. Chest radiography is best way to detect esophageal intubation
   E. Most often ET tube is mal positioned in right main stem bronchus

   **Answer – D**

6. Which of the following is **NOT** a disadvantage of NIV?
   A. Slower correction of gas exchange abnormalities
   B. Reduction of cardiac after load
   C. Gastric distension
   D. Facial skin necrosis
   E. Increased risk of aspiration

   **Answer – B.** Reduction of cardiac after load improves cardiac function in congestive heart failure and cardiogenic pulmonary edema. Hence it is a beneficial effect of NIV.

7. In which of the following condition immediate intubation is preferred over NIV?
   A. Acute severe exacerbation of bronchial asthma with hypercapnic respiratory failure
   B. Acute severe exacerbation of COPD with hypercapnic respiratory failure
   C. Chronic hypercapnic respiratory failure in kyphoscoliosis
   D. Obesity hypoventilation syndrome
   E. Chronic hypercapnic respiratory failure in neuromuscular disorders

   **Answer – A.**

8. Which of the following condition is the **MOST COMMON** indication for NIV?
   A. Cardiogenic pulmonary edema
   B. Facilitation of weaning in COPD
   C. Extubation failure in COPD
   D. Obstructive sleep apnea
   E. Acute exacerbation of COPD

   **Answer – E**

9. Adaptive servo-ventilation is used to treat ---
   A. Obstructive sleep apnea
   B. Central sleep apnea
   C. Cardiogenic pulmonary edema
   D. Obesity hypoventilation syndrome
   E. Weaning from ventilator

   **Answer – B.**
10. Which is a **WRONG** statement regarding high intensity NIV in COPD?
   A. Useful for weaning from mechanical ventilation
   B. Useful for patients with nocturnal hypercapnia
   C. May compromise cardiac function
   D. Useful in treating symptomatic chronic hypercapnic respiratory failure
   E. Should be used in all COPD patients with hypercapnic respiratory failure
   **Answer** – E. Used only when usual pressure and optimal medical treatment fail to correct hypercapnia.

11. Which is a **WRONG** statement regarding NIV in COPD?
   A. NIV should be considered for all COPD patients with a persisting respiratory acidosis after a maximum of one hour of standard medical therapy
   B. Patients with a pH <7.26 have a higher risk of NIV failure
   C. Initial IPAP of 18cms H2O is recommended
   D. EPAP of 4-5cms H2O is recommended
   E. NIV decreases work of breathing
   **Answer** – C. Initial IPAP should be lower, 12 TO 14 cm of H2O

12. Which is a **WRONG** statement regarding NIV in COPD?
   A. Arterial blood gases should be taken minimum at 1, 4 and 12 hours after the initiation of NIV
   B. Late failure’ is defined as failure after 48 hours of non-invasive ventilation
   C. Wean first in day time
   D. Weaning from NIV should start within first 24 hours in responders
   E. Target spo2 is 88 -92%
   **Answer** – D. Weaning should be started only after 24 hours of initiation in responders.

13. Which of the following **DOES NOT** indicate NIV failure in COPD patient?
   A. Progressive decrease in the level of consciousness
   B. Improvement in chest wall movement
   C. Patient ventilator asynchrony
   D. Accessory muscle use
   E. Tachycardia
   **Answer** – B.

14. Which is a **WRONG** statement regarding NIV in COPD?
   A. Decreases duration of hospital stay
   B. NIV failure rate is more in edentulous patients
   C. May not be effective if patient effort is poor
   D. May not be useful when initial respiratory rate is more than 25/minute
   E. Most NIV failures occur within the first 24 hours
   **Answer** – D
15. High intensity NIV in COPD is used to correct ---
   A. Hypoxia
   B. Air trapping
   C. Respiratory muscle fatigue
   D. Acidosis
   E. Hypercapnia
Answer – E

16. Which of the following is MOST LIKELY to cause hypercapnia?
   A. Cardiogenic pulmonary edema
   B. Alveolar hemorrhage
   C. Exacerbation of Interstitial lung disease
   D. Bilateral diaphragmatic palsy
   E. Atelectasis
Answer – D

17. Which of the following is NOT a recommended ventilator strategy for correction of Hypercapnia?
   A. Increase IPAP
   B. Increase Respiratory rate
   C. Decrease EPAP
   D. Lower tidal volume
   E. Increase Fio2
Answer – C.

18. Which of the following is NOT an indication for humidification during NIV?
   A. Dryness of mouth.
   B. Nasal congestion
   C. Nasal stuffiness
   D. Patient ventilator asynchrony
   E. Increased thickness of secretions.
Answer – D.

19. Which of the following is NOT an advantage of CPAP over bi-level NIV?
   A. Simpler technology
   B. Easier synchronisation
   C. Useful in treating AECOPD
   D. Less expensive equipment
   E. Useful in treating OSA
Answer – C.
20. Which of the following statements is **WRONG** regarding NIV to treat acute respiratory failure?
   A. Oro-nasal mask is the first choice.
   B. Stable patients after 24-48 h of NIV with oro-nasal mask can be switched over to nasal mask
   C. The ultimate goal is achieve ventilation with no leaks at all.
   D. Cooperation of the patient is less necessary if an oro-facial mask or helmet is used instead of a nasal mask.
   E. Clinician should find the best interface for each patient.
   **Answer – C.** It is not practical to have no leak at all. Any leak up to 20 percent is acceptable and is usually compensated by the machine.

22. Which is the most widely used ventilator mode for long term home NIV?
   A. Negative pressure ventilation
   B. Bi-level pressure cycled ventilation
   C. Volume-cycled controlled ventilation
   D. Volume-cycled assist-control ventilation
   E. Pressure support in a spontaneous mode
   **Answer – D.**

23. Among the following which is **NOT** considered as a usual indication for long term NIV?
   A. Kyphoscoliosis
   B. Duchene's Muscular Dystrophy
   C. Post-polio syndrome
   D. Obesity hypoventilation
   E. Interstitial lung disease
   **Answer – E.** ILD causes hypoxic respiratory failure. Hence supplemental oxygen therapy is the treatment.

24. Which of the following is a **WRONG** statement about advantages of NIV?
   A. Flexibility in initiating and removing mechanical ventilation
   B. Allows intermittent application
   C. Better patient comfort than invasive ventilation
   D. Useful in un cooperative patients
   E. Reduces the need for sedation
   **Answer – D.** One of the main causes for NIV failure is un cooperative patient.

25. Which of the following statements is **WRONG** about NIV?
   A. Decreases respiratory system compliance
   B. Decreases work of breathing
C. Increases tidal volume
D. Useful In Chronic hypercapnic respiratory failure
E. Reverses micro atelectasis of the lung

**Answer – A.** NIV increases respiratory system compliance

26. Which of the following is **ABSOLUTE** contraindication for NIV in acute hypercapnic respiratory failure?
   A. Agitation
   B. Excess airway secretions
   C. GCS > 10
   D. Severe upper gastrointestinal bleeding
   E. Age more than 70 years

**Answer – D.**

27. Which is a **WRONG** statement?
   A. IPAP is necessarily set higher than EPAP by a minimum of 5cm H2O
   B. Maximum IPAP is usually 20cm H2O
   C. High intensity NIV can be used for weaning from ventilator
   D. Difference between the IPAP and EPAP settings is equivalent to the amount of pressure support
   E. A patient on BiPAP spontaneous mode may develop respiratory alkalosis if he breaths at a low rate

**Answer – E.** Hypoventilation will lead to respiratory acidosis.

28. Which of the following is **NOT** an advantage of nasal mask over oronasal mask?
   A. Better tolerated
   B. More efficient in lowering PCO2 level
   C. Rebreathing is less
   D. Less claustrophobia
   E. Permits speech and expectoration

**Answer – B.**

29. Which of the following statement is **FALSE** regarding interface?
   A. Interfaces must be lightweight, stable and with fixings that interfere little with sleep.
   B. Dead space is not the same in all interfaces.
   C. Oro-nasal masks, when used in circuits without expiratory valve must have holes in the mask to minimize rebreathing.
   D. Patient’s comfort with the mask is crucial in both acute and long-term ventilation.
   E. All interfaces are well tested and offer similar benefits on long term use.

**Answer – E.**
30. Which of the following is **NOT** an advantage of BiPAP over CPAP?
   A. Easier exhalation
   B. Useful in patients who have hypoxia
   C. Useful in treating chronic hypercapnic respiratory failure
   D. Different interface is required for CPAP and BiPAP
   E. Useful in treating neuromuscular disorders leading to chronic respiratory failure

**Answer – D.** Same interface can be used.

31. Which of the following is a **WRONG** statement?
   A. Most of the NIV failures occur within the first 4 hours
   B. NIV should be considered in all patients with Acute exacerbation of COPD
   C. Improper initial ventilatory settings is one of the most common cause for NIV failure
   D. A low starting IPAP enhances patient compliance
   E. A full face mask should be used for the first 24 hours

**Answer – B**

32. Which of the following is **NOT** associated with higher chances of NIV failure?
   A. Edentulous patient
   B. Poor nutrition
   C. pH < 7.25
   D. No improvement within initial 4 hours
   E. Age between 20 to 40 years

**Answer E**

33. Which is the **MOST IMPORTANT** parameter taken into account for initiation of NIV in Acute exacerbation of COPD?
   A. Severe dyspnoea
   B. Respiratory acidosis with pH 7.35 to 7.25
   C. Use of accessory muscles of respiration
   D. Presence of paradoxical breathing
   E. Respiratory rate more 30/minute

**Answer B.**

34. Which of the following is the **MOST COMMON** complication in a patient on NIV?
   A. Nasal bridge ulceration
   B. Aspiration pneumonia
   C. Barotrauma
   D. Hypotension
   E. Gastric distension

**Answer – A**
35. Which of the following is NOT a sign of improvement in a patient on NIV?
   A. Decrease in respiratory rate
   B. Abdominal paradox
   C. Improvement in sensorium
   D. Patient breaths in synchrony with the ventilator
   E. Decrease in accessory muscle activity

**Answer – B.**

36. Which of the following is NOT a contraindication for NIV?
   A. Hemodynamic instability
   B. Inability to protect the airway
   C. Cardiogenic pulmonary edema
   D. Untreated pneumothorax
   E. Mechanical obstruction to upper airway

**Answer C**

37. First clinical sign of barotrauma in supine intubated patient is ---
   A. Sub cutaneous emphysema
   B. Mediastinal emphysema
   C. Pneumothorax
   D. Interstitial emphysema
   E. Hyperinflation

**Answer-A.**

38. Which of the following condition is the **MOST COMMON** indication for NIV?
   A. Cardiogenic pulmonary edema
   B. Facilitation of weaning in COPD
   C. Extubation failure in COPD
   D. Hypoxic respiratory failure
   E. Acute exacerbation of COPD

**Answer – E**

39. Which of the following is a **WRONG** statement about NIV?
   A. NIV is a method of delivery of mechanical ventilation
   B. Does not require an invasive artificial airway
   C. ICU setup is essential for application of NIV
   D. Initially negative pressure NIV was used
   E. Was extensively used during polio epidemics

**Answer – C.** In patients with AECOPD without any co morbidities and in patients with chronic hypercapnic respiratory failure ICU setup is not essential for application of NIV but proper monitoring facilities should be available.
**General Questions**

1. Which is NOT an anti oxidant?
   - A. Ascorbic acid
   - B. Vitamin A
   - C. Vitamin E
   - D. Beta-carotene
   - E. Selenium
   **Answer – B**

2. A 62 year old man with cirrhosis liver has platypnea and orthodeoxia. He has hypoxia which is corrected by supplemental oxygen. He has no primary lung disease. What is the **MOST LIKELY** diagnosis?
   - A. Bilateral pleural effusion
   - B. Porto pulmonary hypertension
   - C. Hepatopulmonary syndrome
   - D. Gross ascitis
   - E. Obstructive sleep apnea
   **Answer – C.**

3. A 76 year old male, chronic smoker admitted with cough immediately after swallowing and expectoration of food particles in sputum. Which of the following is the **MOST LIKELY** cause?
   - A. Tracheo esophageal fistula
   - B. Esophageal obstruction
   - C. Gastro esophageal reflux disease
   - D. Lower cranial nerve palsy
   - E. Bronchogenic carcinoma
   **Answer – A. Ohno’s sign**

4. A 25 year old female with no premorbid lung disease admitted with left sided chest pain with acute breathlessness 4 days after normal delivery. Which of the following is **LEAST LIKELY**?
   - A. Cardiogenic pulmonary edema
   - B. Left sided pneumothorax
   - C. Amniotic fluid embolism
   - D. Pneumonia
   - E. Pulmonary embolism
   **Answer – C. Amniotic fluid embolism occurs within 24 hours after delivery.**
5. Which of the following is NOT an indication for Tracheostomy?
   A. Upper airway obstruction
   B. Prolonged intubation
   C. Stridor in a patient due to bronchogenic carcinoma
   D. To clear airway secretions in unconscious patient
   E. Difficult intubation

   **Answer.** C. If a patient with bronchogenic carcinoma develops stridor it is usually due to obstruction to lower part of the trachea which will not be bypassed with tracheostomy. Such patients will require endobronchial procedure to debulk the lesion and stenting as a palliative measure.

6. Which is a **WRONG** statement about phrenic nerve?
   A. In bilateral phrenic nerve palsy dyspnea decreases on upright posture
   B. Phrenic nerve is purely motor nerve
   C. Bilateral phrenic nerve palsy can lead to hypercapnea
   D. In Bronchogenic carcinoma, left phrenic nerve palsy is more commoner than right
   E. Phrenic nerve arises in neck

   **Answer – B**

7. Which is a **WRONG** statement about tumor markers?
   A. Most of the tumor markers are tumor antigens
   B. Progastrin-releasing peptide (ProGRP) is a reliable marker in SCLC
   C. Useful for cancer screening
   D. Useful for monitoring response to treatment
   E. Tumor markers are found only in blood

   **Answer - E**

8. Which of the following investigation is **NOT USEFUL** to differentiate eventration from diaphragm paralysis?
   A. Phrenic nerve conduction study
   B. CT scan chest and abdomen
   C. USG chest and abdomen
   D. Fluoroscopy
   E. Tran diaphragmatic pressure

   **Answer – B.** Diaphragm movement needs to be demonstrated by dynamic imaging to differentiate eventration from diaphragm paralysis. By CT scan Diaphragm movement can not be ascertained.

9. Which of the following is **NOT USEFUL** in the diagnosis of hyper sensitivity pneumonitis?
   A. Exposure to a known offending antigen.
   B. Positive precipitating antibodies to the offending antigen.
C. Recurrent episodes of symptoms.
D. Expiratory crackles on physical examination.
E. Lung biopsy.

**Answer – D.** This is a non specific physical sign which can occur in a variety of other lung diseases.

10. Most common ECG abnormality seen in Pulmonary embolism is –
   A. Sinus tachycardia
   B. Right bundle branch block
   C. Left bundle branch block
   D. S1Q3T3 pattern
   E. Prolonged QRS complex

**Answer – A.**

11. Which of the following leads to tracheal compression from posterior aspect?
   A. Thyroid swelling
   B. Superior Mediastinal tumor
   C. Carcinoma of Esophagus
   D. Enlarged lymph node
   E. Blood vessels in the neck

**Answer – C**

12. Which is a **WRONG** statement about ILD Associated With Collagen-Vascular Disease?
   A. In rheumatoid arthritis Bronchiolitis obliterans is the most common manifestation
   B. ILD can occur as a complication of treatment of Collagen-Vascular Disease
   C. Prognosis is worst in patients who develop PAH early
   D. Among the Collagen-Vascular Diseases Lung involvement is highest in Systemic sclerosis
   E. Pleural effusion is the most common pulmonary manifestations of SLE

**Answer – A**

13. Which is a **WRONG** statement regarding drugs used in PAH?
   A. Low cardiac output is a contraindication for Calcium channel blockers
   B. All patients may not respond to calcium channel blockers
   C. Increase the dose of warfarin while administering Bosentan
   D. Verapamil is used when heart rate is more than 100/minute
   E. Nifedipine is used when heart rate is less than 100/minute

**Answer – D.** Verapamil should not be used when heart rate is more than 100/minute as it can increase the heart rate further and may even precipitate arrhythmias.
14. Which of the following fungal infection in lung occurs in immuno competent host?
   A. Coccidioidomycosis
   B. Cryptococcosis
   C. Invasive Aspergillosis
   D. Candidiasis
   E. Mucormycosis

**Answer – A.**

15. Which drug is bacteriostatic?
   A. Levofloxacin
   B. Vancomycin
   C. Azithromycin
   D. Ceftriaxone
   E. Rifampicin

**Answer – C.** All other drugs are bactericidal.

16. Pulmonary hypertension is when mean pulmonary artery pressure at rest is more than ---
   A. 25
   B. 30
   C. 35
   D. 40
   E. 45

**Answer – A.**

17. Which is a **WRONG** statement regarding OSA?
   A. More common in men
   B. More common in obese
   C. Can lead to uncontrolled DM and HT
   D. All snorers have OSA
   E. Can lead to cardiac arrhythmia during sleep

**Answer – D.**

18. A patient on 200mcg of Beclamethasone CAN’T BE switched over to which one of the following dose?
   1. 100mcg Mometasone
   2. 200mcg Budesonide
   3. 80mcg Ciclosenide
   4. 100mcg Fluticasone

**Answer – A.**
19. Garland’s triad is seen in ---
   A. Tuberculos mediastinal lymphadenitis
   B. Sarcoidodid
   C. Non hodgkins lymphoma
   D. Hodgkins lymphoma
   E. Hypersensitivity pneumonitis
   
   **Answer B**

20. Which one of the following is NOT a single gene disorder
   A. Marfans syndrome
   B. Cystic fibrosis
   C. Alpha 1 antitrypsin deficiency
   D. Familial pneumothorax
   E. Primary ciliary dyskinesia
   
   **Answer - A**

21. A 19 year old nursing student was brought to the emergency department with sudden onset of breathlessness. She complained of dizziness, light-headedness, weakness, muscle spasms in the hands and feet and tingling around the mouth and fingertips. She had no premorbid disease or symptoms. She had tachypnea. Cardiac and respiratory system examination was normal. What is the next diagnostic investigation?
   A. Chest X-ray
   B. ECG
   C. Renal function test
   D. ABG
   E. Blood sugar estimation
   
   **Answer – D.**
   
   Symptoms are suggestive of psychogenic hyper ventilation. ABG will prove the diagnosis.

22. A 45 year old male patient was admitted for evaluation of breathlessness. Chest X ray showed bilateral focal areas of airspace consolidation. DLCO was raised. What is the most likely diagnosis?
   A. Pulmonary tuberculosis
   B. ARDS
   C. Pulmonary alveolar hemorrhage
   D. Viral bronchopneumonia
   E. Bronchiolitis
   
   **Answer – C.** Raised DLCO with bilateral pulmonary airspace consolidation is diagnostic of pulmonary alveolar hemorrhage
23. In central neurogenic hyperventilation lesion is in
   A. Pons
   B. Medulla
   C. Cerebral cortex
   D. Internal capsule
   E. Cerebellum

Answer – A

24. Which of the following test is not useful in assessing respiratory muscle strength?
   A. Imaging the diaphragm zone of apposition
   B. Maximal inspiratory pressure
   C. Maximal expiratory pressure
   D. Maximal sniff pressures
   E. Maximal transdiaphragmatic pressure

Answer – A.

25. Central bronchiectasis is NOT SEEN in
   A. Cystic fibrosis
   B. Allergic bronchopulmonary aspergillosis (ABPA)
   C. Primary ciliary dyskinesia
   D. Congenital tracheobronchomegaly
   E. Williams Campbell syndrome

Answer – B

26. Lamivudine is a
   A. Nucleoside Reverse Transcriptase Inhibitor
   B. Nonnucleoside Reverse Transcriptase Inhibitor
   C. Protease Inhibitor
   D. Integrase Inhibitors
   E. Fusion Inhibitor

Answer – B

27. Which of the following is LEAST LIKELY to cause lethargy in a COPD patient?
   A. Hypercapnia
   B. Systemic steroids
   C. Hyponatremia
   D. Polycytemia
   E. Depression

Answer – B. High dose systemic steroids may cause mood elevation and mania in susceptible patients.
28. Which is the **LEAST LIKELY** symptom in mediastinal herniation of lung?
   A. Progressive dyspnea
   B. Cough
   C. Stridor
   D. Recurrent pneumonia
   E. Dysphagia

**Answer** C–Stridor.

29. Which of the following investigations if normal **RULES OUT** massive pulmonary embolism?
   A. D-dimer.
   B. ECG.
   C. 2 D echocardiogram.
   D. Coronary angiogram
   E. Lower limb Doppler.

**Answer** – C. In massive pulmonary embolism Echo will show PAH

30. Which of the following is NOT a predisposing cause for pulmonary embolism in COPD?
   A. Polycythemia
   B. Overdose of bronchodilators
   C. Dehydration during Acute exacerbation
   D. Immobility
   E. Associated bronchogenic carcinoma

**Answer** – B.

31. Which of the following is **MOST COMMON** cause for hemoptysis?
   A. Bronchogenic carcinoma
   B. Pulmonary Tuberculosis
   C. Bronchiectasis
   D. Aspergilloma
   E. Lung abscess

**Answer** – B.

32. Which of the following is the **MOST COMMON** adverse event following bronchial artery embolization?
   A. Chest pain
   B. Transverse myelitis
   C. Dysphagia
   D. Cortical blindness
   E. Bronchial necrosis

**Answer** – A.
33. In which of the following condition HRCT is **NOT** used?
   A. Small airway disease
   B. Hemoptysis with normal chest X-ray
   C. Bronchiectasis
   D. Lung cancer screening
   E. Diffuse lung disease

**Answer – D**

34. Cough receptors are **NOT** present in ---
   A. Diaphragm
   B. Pericardium
   C. Stomach
   D. Peritoneum
   E. External auditory meatus

**Answer – D**

35. Which of the following is **LEAST LIKELY** to cause progressive dyspnea, chronic cough, hemoptysis, wheezing and change in voice?
   A. Atrial septal defect
   B. Bronchogenic carcinoma
   C. Mediastinal tumor
   D. Endobronchial Tuberculosis
   E. Chronic pulmonary thrombo embolism

**Answer – E**

36. Which of the following is **NOT** a symptom of hypothyroidism?
   A. Weight gain
   B. Heat intolerance
   C. Menstrual disturbances
   D. Emotional liability
   E. Easy fatigability

**Answer - B**

37. Which of the following is **NOT** a physical feature of hypothyroidism?
   A. Slowed speech and movements
   B. Loss of body hair
   C. Periorbital puffiness
   D. Microglossia
   E. Coarse facial features

**Answer – D. Hypothyroidism can lead to Macroglossia due to increased accumulation of mucopolysaccharides due to decrease in the degradation of these substances.**
38. Which of the following is the clinically significant effect of hypothyroidism on respiratory system
   A. Can lead to obstructive sleep apnea
   B. Pleural effusion
   C. Respiratory muscle dysfunction
   D. Hypoventilation
   E. Decrease carbon monoxide diffusing capacity
Answer – A.

39. What could be the MOST LIKELY cause for refractory hypercapnic respiratory failure, focal seizures, paraesthesia in a patient who had total thyroidectomy?
   A. Hypothyroidism
   B. Hyponatremia
   C. Hypomagnesaemia
   D. Hypocalcaemia
   E. Hypokalemia
Answer – D

40. Which of the following is NOT SEEN IN Pulmonary Artery aneurysm
   A. Platypnea
   B. Orthodeoxia
   C. High output cardiac failure
   D. Paradoxical embolism
   E. Majority occur in lower lobes
Answer – C

41. Pulmonary artery aneurysm is NOT associated with
   A. Hereditary hemorrhagic telengectasia
   B. Liver cirrhosis
   C. Congenital Heart disease
   D. Hypoplasia of lung
   E. Chronic infections in Lung
Answer - D

42. Which is not seen in Pulmonary Artery aneurysm
   A. Murmur on auscultation more intense during inspiration
   B. Polycythemia
   C. Cyanosis
   D. Increased chances of Brain abscess
   E. Hypotension
Answer - E
43. Which of the following is the best investigation for Diagnosis of Pulmonary Artery aneurysm
   A. 3D helical CT scanning
   B. Pulmonary angiogram
   C. VPscan
   D. Cardiopulmonary exercise testing
   E. MRI

   Answer – B.

44. Which of the following is NOT an indication for treatment of Pulmonary Artery aneurysm
   A. Progressive pulmonary arteriovenous malformation enlargement
   B. Paradoxical embolization
   C. Polycythemia
   D. Feeding vessels 3 mm or larger as the cause
   E. Underlying chronic liver disease

   Answer - E

45. Most common age group of Foreign body aspiration is ---
   A. Below 6 months
   B. 6 months to 3 years
   C. 3 to 6 years
   D. 6 to 12 years
   E. 60 to 70 years

   Answer - B

46. Most common immediate symptom of Foreign body aspiration
   A. Cough
   B. Breathlessness
   C. Hemoptysis
   D. Wheezing
   E. Chest pain

   Answer - A

47. Most common site of foreign body lodgment in adults
   A. Right upper lobe
   B. Right lower lobe
   C. Left upper lobe
   D. Left lower lobe
   E. Right middle lobe

   Answer - B
46. Which is **WRONG** statement regarding Foreign body aspiration
   A. Majority of the deaths occurs within few minutes
   B. Radiographic changes are often delayed
   C. Majority of the aspirated foreign bodies can't be detected by chest x-ray
   D. Bronchial obstruction is the cause for majority of deaths
   E. Food substances are the most commonly aspirated foreign bodies

   **Answer** – D. Upper airway obstruction is the cause for majority of deaths

46. Which of the following is not a Radiological sign of Pulmonary embolism
   A. Fleishner sign
   B. Hampton hump
   C. Westermark's sign
   D. Melting sign
   E. Flat waist sign

   **Answer** – E. This is a sign of left lower lobe collapse

47. Which is wrong statement regarding D-dimer?
   A. It is degradation product of crosslinked (by factor XIII) fibrin.
   B. Has excellent positive predictive value
   C. It reflects ongoing activation of the hemostatic system.
   D. Elevated in DVT
   E. Useful in monitoring anticoagulative treatment

   **Answer** - B

48. Which is an opportunistic fungal lung infection
   A. Histoplasma capsulatum
   B. Coccidioides immitis
   C. Blastomyces dermatitidis
   D. Paracoccidioides brasiliensis
   E. Mucorspecies

   **Answer** – E

49. Pulmonary Actinomycosis is usually due to
   A. Aspiration
   B. Trans diaphragmatic spread
   C. Inhalation of the organism
   D. Blood steam spread
   E. Penetrating injury

   **Answer** – A
50. In Ludwig's angina airway is best established by
   A. Oral intubation
   B. Nasal intubation
   C. Tracheostomy
   D. Cricothyroidotomy
   E. Mouth gag
   Answer - 

51. In Ludwig's angina respiratory distress is due to involvement of
   A. Para pharyngeal space
   B. Sub mandibular space
   C. Retro pharyngeal space
   D. Submental space
   E. Buccal space
   Answer - 

52. Neck and oral infections can spread to
   A. Lungs
   B. Mediastinum
   C. Pericardium
   D. Pleura
   Answer - 

53. Most common cause for amyloidosis in developing countries is
   A. Chronic infections
   B. Rheumatoid arthritis
   C. Hodgkin's disease
   D. Renal cell carcinoma
   E. Hereditary periodic fevers
   Answer –A
   Answer - 

54. In secondary amyloidosis MOST COMMON manifestations are due to involvement of —
   A. Kidney
   B. Heart
   C. Skin
   D. Bowel
   E. Joints
   Answer –A.
55. Investigation of choice for diagnosis of secondary amyloidosis is ---
   A. Rectal biopsy
   B. Renal biopsy
   C. Imaging of the involved organ
   D. Subcutaneous fat pad biopsy
   E. Liver biopsy
   Answer – B

56. Most serious complication of Boerhave's syndrome is ---
   A. Mediastinitis
   B. Lung abscess
   C. Aspiration pneumonia
   D. Hemetemesis
   E. Empyema
   Answer – A

57. Which is a WRONG statement regarding Hamman's sign
   A. Coincides with heart beat
   B. Increases on deep breath
   C. Can be elicited in majority of patients with pneumo mediastinum
   D. May mistaken for pericardial rub
   E. Best heard over precordium
   Answer – C.

58. Most common Chest x ray finding in Boerhave's syndrome is –
   A. Pneumo Mediastinum
   B. Left sided Pleural effusion
   C. Pneumonia
   D. Subcutaneous emphysema
   E. Mediastinal widening
   Answer – A

59. Which is a WRONG statement about acquired diaphragmatic hernia
   A. Blunt trauma is the major cause
   B. More common on left side
   C. Motor vehicle accident is the leading cause
   D. May be asymptomatic
   E. Never bilateral
   Answer – E
60 Which is the **BEST** investigation for diagnosis of hernia of Morgagni
   A. Chest X-ray
   B. USG
   C. CT scan of chest and abdomen
   D. Fluoroscopy
   E. Laparoscopy
   Answer - C

61. Which is a **WRONG** statement
   A. Left hilum is higher than right hilum
   B. Left dome can be higher than right dome in few normal individuals
   C. Paralysis of left dome more common than right dome following Cardiac surgery
   D. Phrenic nerve supply pericardium
   E. Bronchogenic carcinoma on right upper lobe is the most common intrathoracic malignancy causing diaphragm palsy
   **Answer – E**

62. Which is a **WRONG** statement regarding silicosis
   A. Radiological lesions more in mid and upper zones
   B. Diagnosis of silicosis is based on history of exposure with radiographic changes
   C. In Progressive massive fibrosis lesion is more than 2cm
   D. If necrosis or Cavitation is seen in Progressive massive fibrosis, mycobacterial infection should be considered
   E. Progressive massive fibrosis occurs more frequently in silicosis than coal workers pneumoconiosis
   **Answer – C**

63. In Ludwig’s angina respiratory distress is due to involvement of
   A. Para pharyngeal space
   B. Sub mandibular space
   C. Retro pharyngeal space
   D. Submental space
   E. Buccal space
   **Answer – A**

64. Bronchocentric granulomatosis is commonly seen in
   A. Fungal pneumonia
   B. COPD
   C. Viral bronchiolitis
   D. Asthma and ABPA
   E. Tropical pulmonary eosinophilia
   **Answer – A**
65. Majority of deaths in Wegener's granulomatosis are due to
   A. Cardiac involvement
   B. Renal involvement
   C. Respiratory failure
   D. Upper respiratory tract obstruction
   E. Sepsis
Answer - B

66. Definitive diagnosis of Wegener's granulomatosis is by
   A. C ANCA
   B. P ANCA
   C. PR3-ANCA
   D. Renal biopsy
   E. Skin biopsy
Answer -

67. Wrong statement about Pulmonary renal syndrome is ——
   A. Diffuse alveolar hemorrhage plus glomerulonephritis
   B. Most often autoimmune disorder is the cause
   C. Have triad of hemoptysis, diffuse lung parenchymal infiltrates and renal disease
   D. Bronchoalveolar Lavage fluid that remains hemorrhagic after sequential sampling is characteristic of diffuse alveolar hemorrhage
   E) Antiglomerular basement membrane antibodies are seen in granulomatosis with polyangiitis
Answer - E

68. Most frequent type of lung involvement in systemic sclerosis is
   A. Interstitial lung disease (NSIP)
   B. Pulmonary hypertension  ILD
   C. with PAH
   D. Airway involvement
   E. Pleural involvement
Answer – A.

69. Which is an indirect pulmonary involvement in scleroderma
   A. Interstitial lung disease (NSIP)
   B. Pulmonary hypertension
   C. Aspiration pneumonia
   D. Pleural involvement
   E. Airway involvement
Answer - C
70. Which of the following is most common form of Mucormycosis
   A. Rhinocerebral
   B. Pulmonary
   C. Cutaneous
   D. Gastrointestinal
   E. Disseminated

   Answer – A

71. Which of the following strongly predisposes to Mucor mycosis
   A. Immunosuppression with Neutropenia
   B. Uncontrolled DM
   C. Iron overload
   D. Malnutrition
   E. Burns

   Answer – B

72. Which of the following is LEAST LIKELY cardiac manifestations in sarcoidosis?
   A. Congestive heart failure
   B. Complete heart block
   C. Pericardial effusion
   D. Atrial arrhythmias
   E. Ventricular arrhythmias

   Answer – C. Sarcoidosis can involve any region of the heart. Most common areas of involvement are the basal segment of the inferolateral left ventricular free wall and the basal inter ventricular septum, followed by the atrium, papillary muscles, the right ventricle and the pericardium.

73. Which of the following is diagnostic investigation in cardiac Sarcoidosis (CS)?
   A. ECG
   B. Echocardiography
   C. Holter monitoring
   D. Endomyocardial biopsy
   E. PET-CT

   Answer D. Holter monitoring is an effective screening tool to detect arrhythmias. Echocardiography can help risk-stratify patients with suspected cardiac Sarcoidosis by quantifying right and left ventricular function. Echocardiography is useful for assessing the response to immunosuppressive therapy in patients with documented ventricular dysfunction. When used together, ECG, Holter monitor, and echocardiogram are highly sensitive for detecting cardiac involvement in Sarcoidosis. Endomyocardial biopsy is the diagnostic investigation in cardiac Sarcoidosis

74. Which of the following is NOT a sign of respiratory muscle dysfunction?
   A. Inability to take a deep inspiration
   B. Reduced breath holding time
   C. Inability to clear airway secretions by coughing
   D. Dyspnea relieved by lying down
   E. Inability to speak properly

   Answer: D. In respiratory muscle dysfunction dyspnea will worsen on lying down as abdominal contents will move up and further hamper the diaphragmatic movement.
75. Which of the following is least likely to occur in patients with neuromuscular disease causing respiratory muscle weakness?
   A. Inability to swallow properly
   B. Drooling of saliva
   C. Profound weakness of neck muscles
   D. Recurrent respiratory tract infections
   E. Hypoxic respiratory failure

**Answer:** E

Respiratory muscle weakness leads to hypercapnic respiratory failure due to hypoventilation.

76. Which of the following tests is NOT useful to assess respiratory muscle function?
   A. Maximal inspiratory pressure
   B. Maximal expiratory pressure
   C. Spirometry
   D. Maximal Sniff Pressures
   E. Trans diaphragmatic pressure

**Answer:** C

Spirometry can be abnormal in respiratory muscle dysfunction but is not useful to assess respiratory muscle function. In respiratory muscle dysfunction, spirometry may show restrictive abnormality with increased residual volume. A fall in vital capacity (VC) between the upright and supine positions has been used to assess diaphragm weakness. Normally, there is less than a 10% drop in VC when changing from the upright to the supine position. With bilateral diaphragm paralysis, VC may be reduced by more than 30% in the supine position.

77. Which is a correct statement regarding Thymus in myasthenia gravis?
   A. Thymic tumor is more common than Thymic hyperplasia
   B. Thymectomy should be done all patients with enlarged thymus
   C. Emergency thymectomy should be done in myasthenic crisis
   D. Thymectomy improves symptoms in all patients
   E. Thymectomy gives immediate relief to symptoms

**Answer:** B

Thymic hyperplasia is more common than thymic tumor in patients with myasthenia gravis. Emergency Thymectomy should not be done in myasthenic crisis as the mortality is high if operated during myasthenic crisis. Thymectomy improves symptoms in majority of patients with thymic lesions, but not in all patients. After Thymectomy it takes few weeks to months for improvement of symptoms.

78. Which is a WRONG statement regarding CT scan thorax in myasthenia gravis?
   A. Should be done in all patients
   B. Sensitive to detect thymic lesions
   C. Useful to rule out other intra-thoracic malignancy
   D. Not required if chest x ray is normal
   E. Can be normal

**Answer** D

CT scan of chest should be done in all in myasthenia gravis as CT is sensitive to detect thymic lesions and useful to rule out intra-thoracic malignancy. Chest CT scan chest was done in this patient. It was normal.
79. Which is a **WRONG** statement?
   A. Post cardiac surgery phrenic nerve paralysis usually occurs on left side
   B. Phrenic nerve paralysis can occur following simple thyroidectomy
   C. Phrenic nerve paralysis can lead to hypercapnic respiratory failure
   D. Phrenic nerve paralysis can lead to orthopnea
   E. In bronchogenic carcinoma phrenic nerve paralysis is more common on left side
   **Answer – B.**

80. Which is a **WRONG** statement?
   A. Diaphragmatic eventration is more common on left side
   B. Morgagni hernia is rare on right side.
   C. Trauma can lead to diaphragmatic hernia
   D. Spirometry is diagnostic in bilateral diaphragmatic palsy
   E. NIV is useful in treating hypercapnic respiratory failure due to diaphragmatic dysfunction
   **Answer – D**

81. Which is a **WRONG** statement regarding hydatid cyst?
   A. Serological tests are useful in diagnosis
   B. Surgical removal is the treatment of choice
   C. Dog is definitive host
   D. Most commonly involved organ is liver
   E. Most common presentation is complications due to rupture
   **Answer – E.**

82. Which is unusual in hiatus hernia?
   A. Aspiration pneumonia
   B. Arrhythmia
   C. Recurrent LRTI
   D. Chest pain
   E. Hemoptysis
   **Answer – E**

83. Which is the **MOST COMMON** respiratory complication of upper GI obstruction?
   A. Chronic cough
   B. Aspiration pneumonia
   C. Bronchiectasis
   D. Exacerbation of Obstructive airway disease
   E. Bronchospasm
   **Answer – A**

84. Which is **NOT** a complication in Acute pancreatitis
   A. Acute respiratory distress syndrome
   B. Basal atelectasis
   C. Pleural effusion
   D. Pulmonary embolism
   E. Cardiac arrhythmia
   **Answer – D**
   Cardiac arrhythmia can occur due to electrolytes imbalance which is common in ac pancreatitis
85. Which is a **WRONG** statement regarding diaphragmatic hernia?
   A. More common on right side
   B. Can be bilateral
   C. Can lead to cardiac symptoms
   D. May present with repeated vomiting
   E. Usually unilateral

*Answer – A.*

86. What is the **DEFINITIVE** investigation in suspected diaphragmatic hernia?
   A. Ultrasound examination of abdomen
   B. Upper GI scope
   C. CT scan thorax and abdomen
   D. X ray abdomen erect
   E. Fluoroscopy

*Answer – C.*

87. Which is the **MOST COMMON** symptom in cardiogenic pulmonary edema?
   A. Breathlessness
   B. Cough
   C. Sputum
   D. Hemoptysis
   E. Chest pain

*Answer – A*

88. Which is a **WRONG** statement about pleural effusion in CCF?
   A. Usually bilateral
   B. More common on right side when unilateral
   C. Natriuretic peptides levels are raised
   D. Always transudate
   E. Diuretics are useful in treatment

*Answer – D*

89. Which of the following is **NOT** an upper lobe predominant disease?
   A. Centrilobular emphysema
   B. Silicosis
   C. Lipoid pneumonia
   D. Hypersensitivity pneumonitis
   E. Sarcoidosis

*Answer – C more common in lower lobe*

90. Which is a **WRONG** statement regarding Aspergilloma?
   A. Symptomatic cases should be treated by surgical resection
   B. Non-invasive form of pulmonary aspergillosis
   C. Usually caused by Aspergillus fumigatus
   D. Majority are symptomatic
   E. Monod sign is seen in CT

*Answer – D*

91. Which is the **MOST** common site for Aspergilloma?
   A. Right upper lobe
   B. Left upper lobe
   C. Right lower lobe
   D. Middle lobe
   E. Left lower lobe
92. In which of the following autoimmune diseases cavity is MOST COMMON?
   A. Sarcoidosis
   B. Wegener's granulomatosis
   C. Rheumatoid arthritis
   D. SLE
   E. Ankylosing spondylitis
   Answer – B

93. Which is a WRONG statement regarding paraneoplastic syndrome?
   A. Non metastatic manifestation of malignancy
   B. Cutaneous and neurological manifestations may often precede diagnosis of primary malignancy
   C. Larger sized tumors more likely to cause paraneoplastic syndrome
   D. Lung cancer is the most common primary
   E. May disappear once primary is treated
   Answer – C

94. Anatomical variation in fissures DO NOT lead to ---
   A. Chest radiographic abnormalities
   B. Changes in mediastinal shadow in chest x ray
   C. Alter the pattern of lung collapse
   D. Change the extent of pneumonic consolidation
   E. Difficult intubation
   Answer – E.

95. Which of the following is a WRONG statement?
   A. SVC is formed by the union of right and left brachiocephalic veins
   B. SVC originates in superior mediastinum
   C. Length of SVC is 5 to 7 cm
   D. SVC extends from costochondral junction of 1" to third rib
   E. Hemiazygos vein drain to SVC
   Answer – E

96. Which of the following diseases is LEAST LIKELY to invade chest wall by contiguity?
   A. Tuberculosis
   B. Actinomycosis
   C. Small cell carcinoma
   D. Invasive aspergillosis
   E. Pleural Mesothelioma
   Answer – C

97. Which is a WRONG statement regarding pulmonary Actinomycosis?
   A. Usually present with respiratory symptoms
   B. Chest wall involvement indicates longstanding untreated disease
   C. Incidence is very high in HIV infected patients
   D. Biopsy is required for definitive diagnosis
   E. Needs to be distinguished from malignancy
   Answer – C

98. Which is a WRONG statement regarding invasive aspergillosis?
   A. More common in patients with organ transplantation
   B. Rapidly progressive diseases
   C. Prolonged neutropenia is a risk factor
   Answers
D. Amphotericin B is the drug of choice  
E. Present with fever, cough, breathlessness  
Answer – D

99. Which of the following is not a feature of pulmonary lymphangitis carcinomatosis  
A. Rapid onset and progression of symptoms  
B. Asymmetrically enlarged mediastinal lymph nodes  
C. Pleural effusion may be seen  
D. Lack of response to steroids within 2–4 weeks  
E. Honeycombing in HRCT  
Answer – E

100. What is the MOST COMMON mechanism of hoarseness of voice in esophageal cancer?  
A. Laryngeal invasion by the tumour  
B. Direct involvement of recurrent laryngeal nerve  
C. Involvement of recurrent laryngeal nerve by metastatic cervical lymph node  
D. Involvement of recurrent laryngeal nerve by metastatic mediastinal lymph node  
E. Cerebral secondary  
Answer – D

101. Which is NOT a long term complication following pneumonectomy?  
A. Hemothorax  
B. Infection of pleural space  
C. Bronchopleural fistula  
D. Post pneumonectomy syndrome  
E. Lobar torsion on opposite side  
Answer – A

102. Which is a WRONG statement regarding post pneumonectomy syndrome?  
A. Late complication  
B. Incidence more in Females  
C. Younger the patient greater the chances  
D. Present with small airway obstruction  
E. Dyspnea is the most common symptom  
Answer – D

103. Which of the following is NOT a symptom in Post pneumonectomy syndrome?  
A. Cough  
B. Hemoptysis  
C. Stridor  
D. Recurrent pneumonia  
E. Dysphagia  
Answer – B

104. Which is a WRONG statement regarding Morgagni hernia?  
A. Posterior  
B. More often right-sided  
C. Usually small  
D. Rare  
E. Low risk of prolapse  
Answer – A
105. Which of the following is **MOST LIKELY** to cause sudden onset of breathlessness and chest pain in a young male without any premorbid illness?
   A. Pneumothorax
   B. Aspiration pneumonia
   C. Aortic dissection
   D. Pulmonary embolism
   E. Myocardial infarction with pulmonary edema

**Answer:** A

Aspiration pneumonia is least likely in a person without any premorbid illness. Most likely cause for sudden onset of breathlessness and chest pain in a young male is pneumothorax. Aortic dissection, pulmonary embolism and Myocardial infarction, all can occur in a young male when there is underlying risk factor.

106. Which amongst the following is **NOT** involved in pulmonary langerhans cell histiocytosis (PLCH)?
   A. Small airways (Bronchioles)
   B. Interstitium
   C. Pulmonary arterioles
   D. Major airways
   E. Pulmonary venules

**Answer:** D

Major airways are not involved in PLCH

107. Which of the following is **LEAST LIKELY** feature in neuromuscular disease causing respiratory muscle weakness?
   A. Inability to swallow properly
   B. Drooling of saliva
   C. Profound weakness of neck muscles
   D. Recurrent respiratory infections
   E. Vigorous cough

**Answer – E.**

108. A 62 year old man with cirrhosis liver has platypnea and orthodeoxia. He has hypoxia which is corrected by supplemental oxygen. He has no primary lung disease. What is the **MOST LIKELY** diagnosis?
   A. Bilateral pleural effusion
   B. Hepatopulmonary syndrome
   C. Portal hypertension
   D. Gross ascitis
   E. Obstructive sleep apnea

**Answer – B**

109. Which is **NOT** accessory muscle of respiration?
   A. Diaphragm
   B. External Intercostal muscles
   C. Scalene muscles
   D. Sternocleidomastoids muscles

**Answer – A**

More prominent in upper laber
110. Most common cause of deaths in granulomatosis with polyangitis is due to ---
   A. Cardiac involvement
   B. Renal involvement
   C. Respiratory failure
   D. Upper respiratory tract obstruction
   E. Sepsis
   
   **Answer – B.**

111. Definitive diagnosis of granulomatosis with polyangitis is by ---
   A. C ANCA
   B. PANCA
   C. PR3-ANCA
   D. Renal biopsy
   E. Skin biopsy
   
   **Answer – D.**

112. Which is a **WRONG** statement about pulmonary renal syndrome?
   A. Diffuse alveolar hemorrhage plus glomerulonephritis
   B. Most often autoimmune disorder is the cause
   C. Have triad of hemoptysis, diffuse lung parenchymal infiltrates and renal disease
   D. Broncho alveolar lavage fluid that remains hemorrhagic after sequential sampling is characteristic of diffuse alveolar hemorrhage
   E. Antiglomerular basement membrane antibodies are seen in granulomatosis with polyangiitis
   
   **Answer – E.**

113. Most frequent type of lung involvement in systemic sclerosis is ---
   A. Interstitial lung disease (NSIP)
   B. Pulmonary hypertension
   C. ILD with PAH
   D. Airway involvement
   E. Pleural involvement
   
   **Answer – A**

114. Which is an indirect pulmonary involvement in scleroderma?
   A. Interstitial lung disease (NSIP)
   B. Pulmonary hypertension
   C. Aspiration pneumonia
   D. Pleural involvement
   E. Airway involvement
   
   **Answer – C.**

115. Which is the **LEAST LIKELY** symptom in mediastinal herniation of lung?
   A. Progressive dyspnea
   B. Cough
   C. Stridor
   D. Recurrent pneumonia
   E. Dysphagia
   
   **Answer – D**
116. Pulse oxymetry measures
   A. Pulse rate and Percentage of Hemoglobin saturated with oxygen
   B. Amount of oxygen contained in blood
   C. Heart rate and Percentage of Hemoglobin saturated with oxygen
   D. Amount of Hemoglobin saturated with oxygen
   E. Percentage of Hemoglobin saturated with oxygen
   Answer – A.

117. Garlands triad is seen in ---
   A. Pulmonary Lymphangitic carcinomatosis
   B. Sarcoïdosis
   C. Lymphoma
   D. Kaposi sarcoma
   E. Systemic sclerosis
   Answer – B

118. Most common indication for Lung Transplantation worldwide is --
   A. ILD
   B. COPD
   C. Idiopathic Pulmonary hypertension
   D. Bronchiectasis
   E. Cystic fibrosis
   Answer – B

119. Where is the lesion in central neurogenic hyperventilation?
   A. Pons
   B. Medulla
   C. Cerebral cortex
   D. Internal capsule
   E. Cerebellum
   Answer – A.

120. All are equipotent except ----
   A. 20mg Hydrocortisone
   B. 4mg Methyl prednisolone
   C. 12mg Deflazacort
   D. 5mg Prednisolone
   Answer – C.

121. Which of the following condition is LEAST LIKELY to cause localized monophonic ronchi?
   A. Mucus plug obstructing a bronchus
   B. Foreign body in a major bronchus
   C. Broncho stenosis
D. Bronchial Asthma
E. Endobronchial tumor

**Answer – D.**

122. Which group of drugs is **LEAST LIKELY** to cause chronic cough?
   
   A. Tricyclic antidepressants
   
   B. ACE inhibitors
   
   C. Beta blockers
   
   D. NSAIDS
   
   E. Calcium channel blockers and Nitrates

**Answer – A.**

123. Which one of the following **DOES NOT** have cough receptors?
   
   A. Diaphragm
   
   B. Pericardium
   
   C. Stomach
   
   D. Peritoneum
   
   E. External auditory meatus

**Answer – D.**

124. Which is a **WRONG** statement regarding post pneumonectomy syndrome?
   
   A. Late complication
   
   B. Incidence more in Females
   
   C. Younger the patient greater the chances
   
   D. Present with small airway obstruction
   
   E. Dyspnea is the most common symptom

**Answer – D.**

125. Which is **NOT** a feature of hypersensitivity pneumonitis?
   
   A. Radiological lesions are more prominent in lower zones
   
   B. Caused by sensitization to repeated inhalation of dusts containing organic antigens.
   
   C. Usually seen in the fourth to sixth decade of life.
   
   D. May present with fever and breathlessness
   
   E. Major causative antigen is Thermophilic Actinomycetes species.

**Answer - A.**
126. Which is NOT an adverse reaction to Beta 2 agonist?
   A. Hypoglycemia
   B. Hypokalemia
   C. Cardiac arrhythmia
   D. Anxiety
   E. Ventilation perfusion mismatch
   
   **Answer – A. can cause hyperglycemia**

127. A 45 year old obese female complains of breathlessness and choking sensation at night after sleep. Which of the following is LEAST LIKELY to be the cause?
   A. Obstructive sleep apnea
   B. Bronchial asthma
   C. Chronic aspiration
   D. Vocal cord dysfunction
   E. Cardiac asthma
   
   **Answer – D. Symptoms of vocal cord dysfunction do not occur during sleep**

128. In which of the following condition Stridor is LEAST LIKELY?
   A. Tracheal stenosis
   B. Upper airway edema
   C. Foreign body obstruction in major airway
   D. Bronchogenic carcinoma
   E. Laryngeal Tumor
   
   **Answer – D.**

129. Which of the following condition is LEAST LIKELY to cause chronic cough with fever?
   A. Chronic liver abscess/Sub phrenic abscess
   B. Large bowel malignancy
   C. Auto immune/ connective tissue diseases
   D. Hematopoietic and lymphoid malignancies
   E. Tuberculous pericarditis
   
   **Answer – B.**

130. Mainstay of management in patients with PAH due to lung disease is —
   A. Bronchodilators
   B. Correction of hypoxia
   C. Pulmonary rehabilitation
   D. Correction of hypercapnia
   E. Calcium channel blockers
   
   **Answer – B.**
131. Which is a WRONG statement regarding drug induced lung disease due to Anti-cancer drugs?
   A. May mimic bacterial infection
   B. Systemic corticosteroids may be useful in some cases
   C. Some drugs may lead to bronchospasm
   D. Discontinuation of the offending drug will lead to restoration of lung function
   E. Toxicity may increase with concomitant radiotherapy

   **Answer – D.**

132. Which is a WRONG statement regarding pulmonary rehabilitation?
   A. Improves exercise tolerance
   B. Decreases dyspnea
   C. Improves quality of life
   D. Chronic respiratory failure is contra indication for pulmonary rehabilitation
   E. Decreases morbidity

   **Answer – D.**

133. Significant exercise induced desaturation is fall in SPO2 by ---
   A. 2 percent
   B. 4 percent
   C. 6 percent
   D. 8 percent
   E. 10 percent

   **Answer – B.**

134. Which is NOT a systemic effect of obstructive sleep apnea?
   A. Hypogonadism
   B. Hypothyroidism
   C. Polycystic ovary disease (PCOD)
   D. Obesity
   E. Hypertension

   **Answer – B.**

135. Which of the following is NOT a feature of OSA?
   A. Unexplained pulmonary hypertension
   B. Daytime hypercapnia
   C. Uncontrolled diabetes mellitus
   D. Cognitive impairment
   E. Unexplained polycythemia

   **Answer – B**
136. Which of the following is a **WRONG** statement?
   A. Majority of OSA patients seek medical help
   B. Focused history and physical examination can identify patients with OSA
   C. Age more than 50 years is a risk factor for OSA
   D. Majority of patients with OSA are symptomatic
   E. OSA is under diagnosed

**Answer – A.**

137. A 19 year old student was brought to the emergency department with sudden onset of breathlessness without any triggering factors. She complained of dizziness, light-headedness, generalized weakness, tingling around the mouth and fingertips. She has tachypnea and carpopedal spasm. No cyanosis. Cardiac and respiratory system examination was normal. What is the **MOST LIKELY** diagnosis?
   A. Pulmonary embolism
   B. Acute severe asthma
   C. Cardiogenic pulmonary edema
   D. Psychogenic hyperventilation
   E. Tension pneumothorax

**Answer – D**

138. A 57 year old man developed dyspnea after permanent cardiac pace maker implantation. Breath sounds were diminished on left side. What is the **MOST LIKELY** diagnosis?
   A. Pneumothorax
   B. Collapse of left lung
   C. Hemopericardium
   D. Hemothorax
   E. Pulmonary edema

**Answer – A**

139. A 58 year old patient was admitted with sudden onset of severe breathlessness. He had tachypnea, tachycardia and hypotension. Cardio respiratory system examination did not reveal any other findings. SPO2 was 78%. What is the **MOST LIKELY** diagnosis?
   A. Cardiogenic pulmonary edema
   B. Massive pulmonary embolism
   C. Psychogenic hyperventilation
   D. Diabetic ketoacidosis
   E. Tension pneumothorax

**Answer – B**

140. What is the treatment of choice diaphragmatic hernia?
   A. Ryle’s tube aspiration
B. Surgical repair  
C. Laparoscopic surgery  
D. Surgery by thoraco abdominal approach  
E. Laprotomy and repair of hernia  

**Answer – D.** In diaphragmatic hernia surgery should be by thoraco abdominal approach as intra thoracic adhesions are common. If the contents are tried to pull down by abdominal approach, bowel injury can occur.

141. What is the **MOST LIKELY** cause for hemoptysis in thoracic aortic aneurysm?  
A. Leaking aortic aneurysm (Aorto-bronchial fistula)  
B. Erosion by bronchogenic carcinoma  
C. Aortic dissection  
D. Bronchiectasis due to compression of adjacent bronchus  
E. Pulmonary embolism

142. What is the **MOST SERIOUS** complication of aortic aneurysm?  
A. Dyspnea due to compression of adjacent bronchus  
B. Rupture and massive hemorrhage.  
C. Aortic dissection  
D. Bronchiectasis due to compression of adjacent bronchus  
E. Thrombo embolism

**Answer: B.** Rupture and massive hemorrhage is the most serious complication of aortic aneurysm. It can lead to rapid deterioration and death within few minutes due to massive blood loss.

143. Which of the following is **LEAST LIKELY** to cause chronic dry cough without any other obvious symptoms or signs?  
A. Hyper reactive airway disease  
B. Chronic obstructive pulmonary disease (COPD)  
C. Gastro-esophageal reflux disease  
D. Small intrathoracic tumors  
E. Endobronchial lesion

**Answer: B.** In COPD predominant symptom is breathlessness

144. Which of the following is **LEAST LIKELY** to cause skin lesions with hemoptysis?  
A. Tuberculosis  
B. Staph infection  
C. Sarcoidosis
D. Bacterial endocarditis  
E. Polyangitis with granulomatosis  

**Answer – C**

145. Which of the following is **LEAST LIKELY** to cause Erythema nodosum?  
A. Sarcoidosis  
B. Tuberculosis  
C. Mycoplasma pneumonia  
D. Lymphoma  
E. Pneumococcal pneumonia  

**Answer - E**

146. Which is a **WRONG** statement regarding congenital diaphragmatic hernia?  
A. May be associated with Pulmonary Hypoplasia  
B. May be associated Cardiac defects  
C. Majority symptoms occur in first decade of life  
D. In adults majority are asymptomatic  
E. No intervention if asymptomatic  

**Answer – E.**

147. Which is a **WRONG** statement regarding Morgagni hernia?  
A. Posterior  
B. More often right-sided  
C. Usually small  
D. Rare  
E. Low risk of prolapse  

**Answer - A it is anterior**

148. Which is a **WRONG** statement regarding silicosis?  
A. Radiological lesions more in mid and upper zones  
B. Diagnosis is based on history of exposure with radiographic changes  
C. In Progressive massive fibrosis (PMF) lesion is more than 2cm  
D. If necrosis or cavitation is seen in PMF, mycobacterial infection should be considered  
E. PMF occurs more frequently in silicosis than coal workers pneumoconiosis  

**Answer – C**

149. A 16 year old boy was admitted with breathlessness, blurred vision, drooping eyelids, slurred speech and difficulty in swallowing. Which is the **LEAST LIKELY** diagnosis?  
A. Botulism  
B. Cobra bite
C. Head injury
D. Narcotic drug poisoning
E. Anaphylaxis

Answer - A

150. A 25 year old male with allergic rhinitis has chronic cough with throat itching. Symptoms more at night. No other symptoms. Which of the following investigations is LEAST useful?
   A. Chest x ray
   B. Spirometry with bronchodilator reversibility testing
   C. FeNO
   D. ENT examination
   E. Bronchoscopy

Answer – E.

151. Which of the following is MOST LIKELY to cause hypoxic respiratory failure?
   A. AECOPD
   B. Severe kyphoscoliosis
   C. Neuro muscular diseases
   D. Obesity hypoventilation syndrome
   E. Massive pulmonary embolism

Answer - E

152. A 56 year old patient admitted with cough, breathlessness and hypoxia. Which is of the following is LEAST LIKELY diagnosis?
   A. Tropical pulmonary eosinophelia
   B. Interstitial lung disease
   C. Lymphangitis carcinomatosis
   D. Hyper sensitivity pneumonitis
   E. Viral pneumonia

Answer - A

153. Which of the following is MOST COMMON cause for bronchopleural fistula in India?
   A. Bacterial pneumonia
   B. Post pneumonectomy bronchial stump dehiscence
   C. Pulmonary tuberculosis
   D. Rupture of emphysematous bulla
   E. Trauma

Answer - C
154. Which is **NOT** the treatment for re-expansion pulmonary edema?
   A. Supplemental oxygen
   B. Mechanical ventilation
   C. Stop further removal of fluid in case of pleural effusion
   D. Diuretics
   E. Clamping of intercostal tube

**Answer - D**

155. Which is bacteriostatic?
   A. Levofloxacin
   B. Vancomycin
   C. Azithromycin
   D. Ceftriaxone
   E. Rifampicin

**Answer - C**

156. Which is the **MOST EFFECTIVE** medication in relieving all the symptoms of allergic rhinitis?
   A. Intranasal glucocorticosteroids
   B. Montelukast
   C. Anticholinergic
   D. Antihistamine
   E. Nasal decongestant

**Answer – A**

157. Which of the following drug **INCREASES** serum levels of Theophylline?
   A. Oral contraceptives
   B. Rifampicin
   C. Phenobarbitone
   D. Tobacco smoking
   E. Carbamazepine

**Answer - A**

158. Which is a **WRONG** statement regarding Montelukast?
   A. Leukotriene receptor antagonist
   B. Can lead to neuropsychiatric disorders
   C. Should not be used on long term basis
   D. Reliever medication in Asthma
   E. Can be used in the treatment of allergic rhinitis

**Answer – D. it is controller medication**
159. Which is a prodrug?
   A. Beclomethasone
   B. Fluticasone
   C. Prednisolone
   D. Methyl prednisolone
   E. Ciclesonide

Answer – E.

160. A 67 year old chronic smoker admitted with cough and recurrent hemoptysis since 2 months. Which of the following investigation will be LEAST useful?
   A. Chest X-RAY
   B. Spirometry
   C. Sputum for AFB smear
   D. CT scan chest
   E. Bronchoscopy

Answer - B most likely diagnosis is pulmonary

161. A 69 year old man with carcinoma stomach admitted with cough, progressive dyspnea since two weeks. He has no fever. He has hypoxia on admission. His chest x ray showed bilateral reticulonodular shadows. What is the next investigation?
   A. CECT thorax
   B. HRCT thorax
   C. Sputum cytology for malignant cells
   D. Bronchoscopy and trans bronchial lung biopsy
   E. Sputum for AFB smear

Answer – B. Most likely diagnosis is pulmonary lymphangitis carcinomatosis

162. A 76 year old man admitted with right sided pleural effusion. His dyspnea did not improve even after therapeutic pleural aspiration. Which of the following is LEAST LIKELY contributing factor for his dyspnea?
   A. Lymphangitic carcinomatosis
   B. Endobronchial obstruction by a tumor
   C. Inversion of diaphragm due to pleural effusion
   D. Underlying COPD
   E. Extensive lung secondaries

Answer – C.
163. A 70 year old female with uncontrolled diabetes, admitted with 10 days history of fever and cough. Chest x ray showed right upper lobe cavity with surrounding infiltrates. What is the next investigation?
   A. Sputum AFB smear
   B. Bronchoscopy
   C. CT scan thorax
   D. Sputum cytology for malignant cells
   E. Sputum for fungal smear and culture

Answer - A

164. Which of the following is NOT a manifestation of hypoxia
   A. Systemic vasoconstriction
   B. Increase in cardiac output
   C. Decrease in B.P.
   D. Pulmonary vasoconstriction
   E. Tachycardia

Answer – A

165. A 50 year old patient comes to the emergency department, a day after he has been administered an antibiotic for an on-going infection, with complaint of palpitations. ECG reveals prolonged QT interval. Which one of the following Fluoroquinolone is most likely cause this adverse effect?
   A. Ciprofloxacin
   B. Norfloxacin
   C. Levofloxacin
   D. Moxifloxacin
   E. Gatifloxacin

Answer - E

166. A 30 year old man presented with 4 months H/o progressive dyspnea, low grade fever, cough and fatigue. His chest X-ray showed B/L airspace consolidation. What is the MOST LIKELY diagnosis?
   A. ARDS
   B. Pulmonary edema
   C. Bacterial bronchopneumonia
D. Pulmonary alveolar proteinosis
E. Pulmonary TB

**Answer – D.**

167. Which is the most severe form of bronchiectasis?

A. Tubular
B. Cystic
C. Varicose
D. Honeycombing
E. Central bronchiectasis

**Answer – B.**

168. Which is **WRONG** statement regarding Virchow's triad

A. Venous Stasis
B. Hypercoagulability
C. Vessel wall injury
D. Immobilisation
E. Venous thrombosis risk factors

**Answer – D.**

169. In hemoptysis blood usually comes from ---

A. Pulmonary artery
B. Bronchial Artery
C. Pulmonary vein
D. Bronchial veins
E. Systemic arteries

**Answer - B**

170. Which systemic Steroid has most potent Anti-inflammatory effect?

A. Prednisolone
B. Deflazacort
C. Betamethasone
D. Methyl prednisolone
E. Mometasone
Answer- C. Dexamethasone and Betamethasone have the most potent Anti-inflammatory effect amongst the systemic steroids.

171. Which is the drug of choice for bronchospasm due to hypersensitivity reaction?
   A. Prednisolone
   B. Methyl prednisolone
   C. Hydrocortisone
   D. Salbutamol
   E. Adrenaline
Answer - E

172. Which is NOT a contraindication for Bupropion?
   A. Seizure disorder.
   B. Alcoholism
   C. Age more than 70 years
   D. Psychiatric illness on medication
   E. Anorexia nervosa
Answer – C

173. Which is NOT an indication for Long-term oxygen therapy?
   A. PaO2 less than 55mmhg
   B. PCO2 more than 60mmhg
   C. PaO2 between 55-60 with target organ dysfunction
   D. SaO2 88—90 with target organ dysfunction
   E. Chronic Corpulmonale with Pao2 less than 60mmHg
Answer-B

174. Which is a WRONG statement regarding Long-term oxygen therapy
   A. Increase the flow during sleep
   B. Less than 16 hr daily may not be beneficial
   C. Tran tracheal O2 is ideal for long-term use
   D. Requirement may change over a period of time
   E. Does not lead to oxygen toxicity
Answer-C

175. Which is the major component of Green house gas
   A. Water vapor
   B. CO2
   C. Methane
   D. Fluorocarbons
   E. So2
Answer-A
176. NDM-1 causes resistance to which group of antibiotic
   A. Fluoroquinolone
   B. Macrolide
   C. Carbapenems
   D. Lincosamides
   E. Fluoroquinolone
   **Answer-C**

177. Which is not antitussive?
   A. Codeine
   B. Diphenhydramine
   C. Guaifenesin
   D. Levodropropizine
   **Answer - C**

179. Which calcium channel blocker contraindicated in PAH
   A. Diltiazem
   B. Verapamil
   C. Nifedipine
   D. Amlodipine
   **Answer-B**

180. Compliance of lung increases in ---
   A. ARDS
   B. Pulmonary edema
   C. Collapse
   D. Pneumonia
   E. Emphysema
   **Answer-E**

181. Pulmonary hypertension is when mean PAP at rest is more than ---
   A. 25
   B. 30
   C. 35
   D. 40
   E. 50
   **Answer-A.**
182. Calcium channel blocker of choice in PAH with tachycardia is —
   A. Amlodepin
   B. Diltiazem
   C. Verapamil
   D. Nifedipine
   E. Amlodipine

Answer - B

183. Calcium channel blocker of choice in PAH with Heart rate less than 100 is —
   A. Amlodepin
   B. Diltiazem
   C. Verapamil
   D. Nifedipine

Answer - D

184. Cystic fibrosis is inherited as?
   A. Autosomal recessive
   B. Autosomal dominant
   C. Sex-linked recessive
   D. Sex-linked dominant

Answer - A

185. Which is a **WRONG** statement about chronic beryllium disease?
   A. Occurs in all who are exposed to beryllium
   B. Symptoms resemble that of ILD
   C. Immunologic reaction involved
   D. Present with progressive dyspnea

Answer - A.

186. Which is **NOT** a commonly used test for diagnosis of allergy?
   A. Elimination tests
   B. Skin tests
C. Broncho-provocation tests
D. Blood tests
Answer-C.

187. Embryonic development of lung start at day ---
   A. 26
   B. 32
   C. 36
   D. 40
   E. 46
Answer-A

188. Pores of kohn are
   A. Inter alveolar pores
   B. Inter lobar pores
   C. Communication between lung & pleura
   D. Communication between lung & mediastinum
Answer-A.

189. Which is a **WRONG** statement about nicotine ?
   A. Insect neurotoxin
   B. Euphoriant
   C. Can improve task performance
   D. Decreases attention time
Answer-D.

190. Part of the lung involved in emphysema is ---
   A. Acinus
   B. Terminal bronchiole
   C. Labor bronchiole
   D. Major bronchus
Answer-A

191. Alpha1 Antitrypsin is produced from ---
   A. Hepatocyte
   B. Lung fibroblast
   C. Airway epithelial cells
   D. Macrophage
Answer-A.

192. Commonest symptom of pulmonary hypertension is ---
   A. Dyspnea
B. Hemoptysis
C. Chest pain
D. Cough

**Answer-A.**

193. Most common physical sign in pulmonary embolism is _________
   
   A. Loud P2
   B. Tachycardia
   C. Tachypnea
   D. Pleural rub

**Answer-A**

194. Hyperbaric oxygen therapy is used in all except
   
   A. Chronic refractory osteomyelitis
   B. Vascular insufficiency
   C. Carbon monoxide poisoning
   D. ARDS

**Answer-D**

195. Which is a **WRONG** statement regarding interstitial lung disease?
   
   A. More common in elderly
   B. FVC decreases
   C. DLCO decreases
   D. FVC/ FEV1 normal
   E. TLC increases

**Answer-E**

196. Most patent euphoriant drug among the following is
   
   A. Cocaine
   B. Amphetamine
   C. Morphine
   D. Nicotine

**Answer-D**

197. All are used for treatment in smoking cessation except _________
   
   A. Nicotine polacrilax
B. Bupropion
C. Clonidine
D. Haloperidol

Answer-D

198. Which is a **WRONG** statement about Bosentan?
   A. Endothelin receptor antagonist
   B. Can cause hepatotoxicity
   C. Starting dose 62.5mg bd
   D. Selective ETA Receptor antagonist

Answer-D

199. Muco-active drugs are contraindicated in---
   A. Patient on ventilator
   B. Not able to remove secretions
   C. Unconscious Patient
   D. Tracheostomy

Answer-B

200. Which is **NOT** a hypersensitivity reaction to Aspergillus
   A. Allergic bronchial Asthma
   B. ABPA
   C. Bronchocentric Granulomatosis
   D. Extrinsic Allergic Alveolitis

Answer-D

201. Which of the following is **NOT** a stage in the development of lung
   A. Embryonic
   B. Pseudoglandular
   C. Glandular
   D. Canalicular
   E. Saccular

Answer- C There is no glandular stage. Last stage in the development of lung is Alveolar stage.

202. Surfactant production and secretion **STARTS** at which stage of lung development
   A. Embryonic
   B. Pseudoglandular
   C. Canalicular
   D. Saccular
   E. Alveolar

Answer- D.
203. Human foetus is **Viable** after how many weeks of gestation
   A. 12
   B. 16
   C. 20
   D. 24
   E. 28

**Answer-D.** By this time surfactant production and secretion starts. Surfactant is essential for life.

204. Alveolar type 2 cells produce ---
   A. Mucus
   B. Surfactant
   C. Macrophages
   D. Lymphocytes
   E. Natural killer cells

**Answer-B.**

205. Which is a **Wrong** statement regarding vaccination?
   A. Leads to development of humoral and cell mediated immunity
   B. Leads to development of immunological memory
   C. Reduces the incidence of the disease
   D. May lead to development of mild symptoms
   E. Efficacy of a vaccine always remains constant

**Answer -5.** Efficacy of the vaccine may change over a period of time if not prepared, stored, transported or administered properly. Mutations in the pathogen may render the vaccine less or ineffective over a period of time especially viral vaccines.

206. Which of the following is **NOT** used as a vaccine so far?
   1. Inactivated form of the pathogen
   2. Killed form of the pathogen
   3. Surface proteins of the pathogen
   4. DNA of the pathogen
   5. Toxins produced by the pathogen

**Answer – 4.** Genetically engineered vaccine with DNA is not licensed yet.

207. Which of the following is **NOT** a desired character of an ideal vaccine?
   1. Should give long term protection
   2. Should retain the virulence of the pathogen
   3. Should be easy to produce, store and transport
4. Should be safe
5. Should protect all who are vaccinated

**Answer -2.** If the pathogen retains or regains the virulence then it will lead disease in the vaccinated individual. Live attenuated vaccine is produced attenuated form of the pathogen by making the pathogen to lose its virulence by serial subculture.

208. Which is a **WRONG** statement regarding vaccination?
1. Protects only those who are vaccinated
2. Reduces the rate of person to-person transmission of disease
3. Useful for diseases for which there is no effective treatment
4. Can lead to eradication of a disease
5. Less effective in elderly

**Answer – 1.** Vaccine indirectly protects those who are not vaccinated by herd immunity. Also a live attenuated vaccine can lead to transmission to others which can lead to immunity. Vaccine may be less effective in elderly due to poor immune response.

209. Which of the following type of vaccine is **MOST POTENT** vaccine?
1. Live attenuated vaccine
2. Inactivated vaccine
3. Subunit vaccine
4. Viral-vector vaccine
5. Synthetic peptide vaccine

**Answer – 1.**

210. Which is a **WRONG** statement regarding live attenuated vaccine?
1. May cause mild form of the disease
2. Usually used ones are anti-viral vaccines
3. One or two doses are sufficient
4. Not safe in immunocompromised individuals
5. Leads to immunity only for a short period

**Answer – 5.** Live attenuated vaccine usually lead to long term immunity.

211. Which of the following is a **WRONG** statement regarding genetically engineered vaccine?
1. Safe even in immunocompromised
2. High potency
3. Short production cycles
4. No need for regulatory body approval
5. Low-cost for manufacturing

**Answer 4.** All vaccines need regulatory body approval
212. Which vaccine has heterologous effects?
   1. Oral polio
   2. BCG
   3. Tetanus toxoid
   4. Yellow fever vaccine
   5. Small pox vaccine

   Answer – 2.

213. Which vaccine is used for therapeutic purpose?
   1. Influenza vaccine
   2. MMR vaccine
   3. Hepatitis B vaccine
   4. Pertussis vaccine
   5. BCG vaccine

   Answer - 5.

214. Which is NOT a hurdle in developing COVID 19 vaccine?
   1. Frequent mutation of the virus
   2. Immunological response to the virus still not known
   3. Genomic resemblance to SARS and MARS corona viruses
   4. Prolonged lockdown
   5. Safety concern

   Answer – 3.
Lung function testing

1. Which of the following investigation is NOT useful to detect small airway disease?
   A. FEF 25-75%
   B. HRCT Thorax
   C. DLCO
   D. Impulse oscillometry
   E. RV/TLC via body plethysmography
   **Answer – C**

2. A 40-year-old female was evaluated for breathlessness. She has normal spirometry, Low DLCO, Normal lung volume and Hypoxia in ABG. What is the **MOST LIKELY** diagnosis?
   A. Chronic pulmonary thrombo embolism
   B. Interstitial lung disease
   C. Kyphoscoliosis
   D. Polycythemia
   E. Pulmonary alveolar hemorrhage
   **Answer – A.** In Interstitial lung disease and kyphoscoliosis spirometry will show restrictive defect with reduced lung volume. In polycythemia and Pulmonary alveolar hemorrhage DLCO will be raised.

3. Which of the following **DOES NOT** occur with increasing age in the respiratory system
   A. DLCO increases
   B. Residual volume increases
   C. Vital capacity decreases
   D. Elasticity decreases
   E. Chest wall compliance decreases
   **Answer – A.** DLCO decreases with age.

4. Which of the following accurately measures the lung volume in a patient with bulla?
   A. HRCT
   B. Body plethysmography
   C. Helium dilution technique
   D. Spirometry
   E. Impulse oscillometry
   **Answer – B**

5. Which is a **WRONG** statement regarding neuromuscular weakness involving respiratory muscles?
   A. Total lung capacity decreases
   B. Dyspnea may decrease on erect posture
A. Hypercapnia may occur during sleep
B. Vital capacity decreases
C. Residual volume decreases
**Answer** – E. Residual volume usually remains constant.

6. Which is **NOT** a feature in respiratory muscle weakness?
   A. Unexplained reduction in vital capacity
   B. Hypercapnia without obvious cause
   C. Unexplained recurrent respiratory tract infections
   D. Decrease in functional residual capacity.
   E. Generalized muscle weakness.
**Answer** – D.

7. Which is a **WRONG** statement?
   A. Inability to speak properly indicates expiratory muscle weakness
   B. In diaphragmatic paralysis dyspnea gets relieved by lying down
   C. Inspiratory muscle weakness may lead to hypercapnia
   D. Respiratory muscle training is beneficial in chronic respiratory muscle dysfunction
   E. Inability to cough properly and clear airway secretions indicates expiratory muscle weakness
**Answer** – B

8. Which of the following is **LEAST LIKELY** to cause respiratory alkalosis?
   A. Pneumonia
   B. Acute exacerbation of Asthma
   C. High grade fever
   D. High altitude
   E. Severe kyphoscoliosis
**Answer** – E.

9. Normal Spo2 is ---
   A. 88 – 92%
   B. 90 – 92 %
   C. 93 --94 %
   D. 95 -- 99%
   E. 100%
**Answer** – D.

10. Which of the following is the **MOST COMMONLY** used test to assess respiratory muscle strength?
    A. Mouth pressure
    B. Trans diaphragmatic pressure
C. Sniff Tests  
D. Cough Tests  
E. Phrenic nerve stimulation

**Answer - A.**

11. Which of the following condition is **MOST LIKELY** to be associated with respiratory muscle dysfunction?
   
   A. Bronchial asthma  
   B. Bronchiectasis  
   C. ARDS  
   D. Severe COPD  
   E. Bronchogenic carcinoma

**Answer – D.**

12. Which of the following conditions **DOES NOT** lead to acute respiratory muscle weakness?
   
   A. Cobra bite  
   B. Guilin Barrie syndrome  
   C. Bulbar palsy  
   D. Parkinsonism  
   E. Botulism

**Answer – D.**

13. Which of the following is **NOT** seen in chronic slowly progressive **INSPIRATORY** muscle dysfunction?
   
   A. Tachypnea and tachycardia  
   B. Inability clear airway secretions  
   C. Paradoxical breathing  
   D. Dyspnea decreases on standing  
   E. Hypercapnic respiratory failure

**Answer – B.** Clearing the airway secretions is by expiratory muscles.

14. A 60 year old patient admitted with high spinal cord injury. He has grade 4 power in upper limb and grade 3 in lower limbs. He has retention of secretions. He is not able to cough and clear his airway secretions. His ABG is normal. Which is a **CORRECT** statement?
   
   A. He has inspiratory muscle weakness  
   B. He has diaphragmatic palsy  
   C. He has expiratory muscle weakness  
   D. CT scan thorax will be useful to assess diaphragm movement in this patient  
   E. He has vocal cord dysfunction

**Answer – C.**
15. Which is a WRONG statement?
   A. Inability to speak properly indicates expiratory muscle weakness
   B. In diaphragmatic paralysis dyspnea gets relieved by lying down
   C. Inspiratory muscle weakness leads to hypercapnia
   D. Respiratory muscle training is beneficial in chronic respiratory muscle dysfunction
   E. Inability to cough properly and clear airway secretions indicates expiratory muscle weakness
   Answer – B.

16. Which is NOT seen in COPD?
   A. Decrease in expiratory reserve volume
   B. Increase in Inspiratory capacity
   C. Increase in Total Lung Capacity
   D. Increase in Residual Volume
   E. Increase in Functional Residual Capacity
   Answer – B. Inspiratory capacity reduces in COPD.

17. Which is a WRONG statement regarding spirometry
   A. May lead to over diagnosis of COPD in elderly(age more than 75 yr)
   B. May lead to under diagnosis of COPD in younger age group (age less than 45 yr)
   C. Always abnormal in bronchial asthma
   D. Helps to differentiate asthma from COPD
   E. Should be done as a planned procedure
   Answer – C.

18. In which of the following condition spirometry is NOT indicated
   A. Diagnosis of COPD
   B. Evaluating the cause of unexplained hemoptysis
   C. Evaluating a patient with dyspnea
   D. Pre-operative evaluation for lung resection surgery
   E. To differentiate between Asthma and COPD
   Answer - B

19. Which of the following is NOT a sign of impending respiratory failure in neuromuscular disease?
   A. Tachypnea
   B. Vigorous coughing
   C. Inability to swallow properly
D. Reduced breath holding time
E. Profound weakness of neck flexion

Answer – B.

20. Which is a **WRONG** statement about phrenic nerve?
   A. Contains predominantly C3 nerve roots
   B. Supplies sensory to diaphragm, pleura and pericardium
   C. Involvement of left phrenic nerve is more common than right phrenic nerve in intrathoracic lesions
   D. Left phrenic nerve is close to left ventricle
   E. Right phrenic nerve passes through vena cava hiatus

Answer – A. Contains predominantly C4 nerve roots also receives contributions from the 5th and 3rd cervical nerves.

21. Which is **NOT** seen in Emphysema?
   A. Increase in expiratory reserve volume
   B. Increase in RV/TLC
   C. Increase in Total Lung Capacity
   D. Increase in Residual Volume
   E. Increase in Functional Residual Capacity

Answer – A.

22. Which is **NOT** seen in COPD?
   A. Airway Resistance increases
   B. Residual volume (RV) increases
   C. RV/TLC decreases
   D. Inspiratory capacity decreases
   E. Total lung capacity (TLC) increases

Answer – C

23. Which of the following consistently increases with age?
   A. Forced Vital Capacity
   B. Total Lung Capacity
   C. FEV1
   D. Residual Volume
   E. Compliance

Answer – D.

24. Which of the following is **NOT** a sign of respiratory muscle dysfunction?
   A. Inability to take a deep inspiration
B. Reduced breath holding time
C. Dyspnoea relieved by lying down
D. Inability to speak properly
E. Reduced maximal expiratory pressure

**Answer - C**

25. Which is the **MOST** debilitating symptom in COPD?
   A. Cough
   B. Excess sputum production
   C. Anxiety and depression
   D. Breathlessness
   E. Chest pain

**Answer – D**

26. Which is **NOT** measured by spirometry
   A. FVC
   B. FEF 25 - 75
   C. RV
   D. FEV1
   E. PEFR

**Answer - RV**

27. A 65 year old male admitted for evaluation of breathlessness. Which of the following investigations will be the best investigation to differentiate between Asthma, COPD and ILD?
   A. Chest x ray
   B. DLCO
   C. Spirometry with bronchodilator reversibility test
   D. HRCT thorax
   E. Cardio pulmonary exercise test

**Answer - C**

28. Spirometry is **NOT** useful in COPD to ---
   A. Assess disease severity
   B. Predict the prognosis
   C. Assess response to treatment
   E. Diagnose of COPD
   F. Decide need for long term oxygen

**Answer - E**
29. Which parameter remains normal in obesity?
   A. FEV1/FVC
   B. VC
   C. FRC
   D. ERV
   E. FEF 25-75

Answer: A.
**Metathoracic tumors**

1. A patient with features of Cushing's syndrome has been diagnosed to have a mediastinal tumor. What is the **MOST LIKELY** tumor?
   - A. Teratoma
   - B. Thymic carcinoid
   - C. Neurogenic tumor
   - D. Non Hodgkin's lymphoma
   - E. Germ cell tumor  **Answer – B.** Endogenous Cushing's syndrome is mainly due to ACTH secreting pituitary adenomas - 75 to 80%, adrenal neoplasms (10-15%) and ectopic ACTH secretion (10%). Ectopic sources of ACTH include small cell carcinoma of the lung and neuroendocrine tumors such as bronchial and thymic carcinoid and rarely gastro-intestinal tract carcinoids.


2. Which is a **WRONG** statement about Lambert-Eaton myasthenic syndrome?
   - A. Proximal muscle weakness in legs and arms.
   - B. Tendon reflexes increased
   - C. May be associated with autonomic dysfunction
   - D. Muscle power may improve after first few contractions
   - E. Auto antibodies to voltage-sensitive calcium channels in presynaptic motor nerve terminal  **Answer – B.** Areflexia is common in this condition. Lambert-Eaton myasthenic syndrome (LEMS) is a paraneoplastic manifestation. Most common cause is small cell lung carcinoma.


3. A 76 year old male, chronic smoker admitted with history of hoarseness of voice since 3 weeks and strider since 5 days. What is the next step in evaluation?
   - A. Indirect laryngoscopic examination
   - B. Bronchoscopy
   - C. CT scan thorax
   - D. MRI of neck
   - E. Chest X-ray  **Answer – A.** These symptoms are suggestive of laryngeal carcinoma. Hence indirect laryngoscopic examination should be the next step in evaluation.
4. A 65 year old chronic smoker admitted with recurrent pneumonia in right lower lobe with hemoptysis and chronic cough. What is the next **diagnostic** investigation?

A. USG of right hemithorax
B. Bronchoscopy
C. CT scan thorax
D. USG of right hemithorax and abdomen
E. Sputum culture and sensitivity

**Answer** – B. These symptoms are suggestive of endobronchial obstruction. Hence next diagnostic investigation is bronchoscopy. Most common cause for recurrent pneumonia in the same lobe of the lung in an elderly smoker is bronchogenic carcinoma causing bronchial obstruction. CT scan of the chest will be useful for evaluation and planning bronchoscopy.

1. Which is a **Wrong** statement regarding intra thoracic secondaries?
A. Breast and ovaries are the common primary sites in females
B. Prostate is the most common site for primary in males
C. Endobronchial secondary may mimic bronchogenic carcinoma
D. Surgery can be considered in solitary secondary
E. More common in lower lobes

**Answer** – B. Secondaries from prostate is not so common compared to other primary sites in males. If the primary malignancy is treated, surgery can be considered in solitary secondary provided no other secondaries elsewhere.

5. Which is a **Wrong** statement about lung cancer?
A. Hypercalcemia is a paraneoplastic manifestation in small cell lung cancer
B. Superior vena cava obstruction occurs in right sided tumors
C. Hoarseness of voice is more common in left sided tumors
D. Predominant symptom in Pancoast tumor is pain
E. Most common site is right upper lobe

**Answer** – A. Hypercalcemia is a paraneoplastic manifestation more common in squamous cell lung cancer. Superior vena cava is on the right side close to the costochondral junction of 1st to 3rd rib. Hence SVC obstruction can occur in right upper lobe tumors or mediastinal lymph nodes on right side. Left recurrent laryngeal nerve descends down into to the thorax and hooks around the arch of aorta. Right recurrent laryngeal nerve does not descend to thorax. Hence hoarseness of voice is more common in left sided tumors.

6. Which is **not** a feature of pulmonary lymphangitic carcinomatosis?
A. Rapid onset and progression of symptoms
B. Asymmetrically enlarged mediastinal lymph nodes
C. Most commonly occurs in small cell carcinoma of lung
D. Relative sparing of costophrenic angles
E. Lack of response to steroids within 2–4 weeks
Answer – C. PLC is most common in adenocarcinoma, especially from lung, breast and gastric cancers.

7. Which is the MOST FREQUENTLY reported complication of trans thoracic fine needle aspiration
   A. Severe chest pain
   B. Pneumothorax
   C. Hemoptysis
   D. Pneumo mediastinum
   E. Surgical emphysema

Answer - B

8. Which is NOT a common primary site for secondaries in the lung?
   A. Colon
   B. Brain
   C. Soft tissue sarcoma
   D. Kidney
   E. Malignant melanoma

Answer – B. Extra neural metastasis is rare in brain tumors.

9. Airway stent is NOT preferred in which of the following condition?
   A. Central airway obstruction due to benign/malignant lesions not fit for resection
   B. Viable lung beyond the level of obstruction
   C. External compression by vessel
   D. For sealing of airway fistula
   E. Tracheobronchomalacia

Answer – C. Stent placement may lead to rupture of the vessel and uncontrolled bleeding.

10. Which of the following is MOST COMMON cause for vocal cord paralysis?
    A. Multiple sclerosis
    B. Intra thoracic tumors
    C. Infection
    D. Idiopathic
    E. Trauma

Answer – B. Two most common causes for vocal cord paralysis include surgical complication and intra thoracic tumors.
11. Which of the following is the **MOST COMMON** cause for acquired tracheoesophageal fistula?
   A. Bronchogenic carcinoma
   B. Trauma
   C. Prolonged intubation
   D. Infection
   E. Carcinoma of esophagus

   **Answer** – E. Second common cause is cuff-related necrosis.

12. In which of the following condition bronchoscopy is **LIKELY** to be useful for diagnosis?
   A. Peripheral solitary pulmonary nodule less than 2 cm in diameter
   B. Persistent asthma-like symptoms and chronic cough
   C. Isolated, unexplained pleural effusion
   D. Hemoptysis with a non-localizing chest radiograph
   E. Unexplained breathlessness

   **Answer** – B. This symptom indicates probable endobronchial lesion which may be bronchoscopically visible.

13. Which of the following is a **WRONG** statement?
   A. SVC is formed by the union of right and left brachiocephalic veins
   B. SVC originates in superior mediastinum
   C. Length of SVC is 5 to 7 cm
   D. SVC extends from costochondral junction of 1st to 3rd rib
   E. Hemiazygos vein drains to SVC

   **Answer** – E. Hemiazygos vein drains to azygos vein.

14. Which of the following is **LEAST LIKELY** to cause hoarseness of voice with recurrent hemoptysis?
   A. Laryngeal cancer
   B. Bronchogenic carcinoma
   C. Vocal cord nodule
   D. Tuberculosis of respiratory tract
   E. Granulomatosis with Polyangiitis

   **Answer** – C. Hemoptysis is not a symptom in vocal cord nodule.
15. Which is the MOST COMMON intra thoracic malignancy causing hoarseness of voice?
   A. Esophageal carcinoma
   B. Bronchogenic carcinoma
   C. Lymphoma
   D. Thyroid carcinoma
   E. Mediastinal teratoma

   Answer – B.

16. Which is a RARE SYMPTOM in thoracic aortic aneurysm?
   A. Chronic cough
   B. Hemoptysis
   C. Hoarseness of voice
   D. Chest pain
   E. Congestive cardiac failure

   Answer – B.

17. Which of the following is the MOST COMMON cause for descending thoracic aortic aneurysm?
   A. Cystic medial degeneration
   B. Bicuspid Aortic Valve
   C. Family history of thoracic aortic aneurysm
   D. Atherosclerosis
   E. Syphilis

   Answer – D. All the other are risk factors for developing ascending aortic aneurysm.

18. Which is a WRONG statement regarding aortic aneurysm?
   A. Larger the size greater the chance for rupture
   B. More common in elderly females
   C. Smokers have higher risk to develop aneurysm
   D. Thoracic trauma is a risk factor for aortic aneurysm
   E. Majority of aortic aneurysms are asymptomatic

   Answer – B. More common in elderly males.
19. Which is NOT a risk factor for developing aortic artery aneurysm?
   A. Marfan syndrome
   B. Hypertension
   C. Family history of aortic artery aneurysm
   D. History of coronary artery disease
   E. Primary syphilis

   **Answer – E.** Syphilitic aortitis and aortic aneurysm occurs in tertiary stage of syphilis.

20. Which of the following is a **WRONG** statement regarding aortic aneurysm?
   A. Cystic medial degeneration is an important risk factor
   B. May be associated with abdominal artery aneurysm
   C. Predisposes for aortic dissection
   D. All aneurysms should be treated surgically
   E. Can present with chest pain

   **Answer – D.**

21. Which of the following investigation is **NOT** useful in evaluating aortic aneurysm?
   A. CT angiogram
   B. Aortogram
   C. MRI of thorax
   D. Thoracic ultrasound
   E. Contrast enhanced CT scan of thorax

   **Answer – D.**

22. Which of the following **MAY NOT** require surgery in aortic artery aneurysm?
   A. Size less than 5.5 centimeters (cm)
   B. Acute symptoms due to aneurysm
   C. Aneurysm growth rate more than 0.5 cm over a period of six months to one year
   D. Presence of genetic disorders or familial history of thoracic aneurysms
   E. Ruptured aneurysm

   **Answer – A.** Size more than 5.5 to 6cm is indication for surgery as chances of complication including rupture is high.

23. Which is a **WRONG** statement regarding Papillary adenocarcinoma of lung?
   A. Needs to be distinguished from thyroid and ovarian cancer
   B. Long term prognosis poor
   C. Is a sub type of adenocarcinoma
   D. Highly chemo sensitive
   E. May be intermixed with broncho alveolar cancer

   **Answer – D.** It is not chemo sensitive
24. Immuno histochemistry is NOT useful in ---
   A. Diagnosing cancer
   B. Differentiating between benign and malignant tumors
   C. To find probable primary site of a tumor
   D. Planning treatment of certain cancers
   E. To identify recurrence of cancer
   
   Answer – E

25. Which of the following is the MOST COMMON cystic lesion in mediastinum
   A. Pericardial cyst
   B. Cystic hygroma
   C. Bronchogenic cyst
   D. Esophageal duplication cyst
   E. Neuro enteric cyst
   
   Answer – C

26. Which of the following symptom is LEAST LIKELY in left upper lobe mass?
   A. Hoarseness of voice
   B. Hemoptysis
   C. Chest pain
   D. Features of superior vena caval obstruction
   E. Cough
   
   Answer – D. Superior vena cava is on the right side.

27. Which is a WRONG statement regarding secondary cancer in lungs
   A. Size of the secondaries are usually uniform.
   B. Thyroid cancer and ovarian cancer are more commonly associated with a miliary pattern
   C. Isolated endobronchial metastases are rare
   D. Lymphangitic spread into the lungs more common with adenocarcinoma
   E. Cannonball appearance is associated with colorectal cancer and sarcoma
   
   Answer- A. Size varies.

28. Which is a WRONG statement regarding Bronchogenic cyst?
   A. Derived from the primitive foregut
   B. Recurrence is uncommon after complete excision
   C. Most common site is middle mediastinum
   D. Usually have a patent connection with the airway
   E. Usually unilocular
   
   Answer – D. Bronchogenic cyst usually has no connection with airway.
29. Which is the **LEAST COMMON** symptom in bronchogenic cyst?
   A. Hemoptysis
   B. Cough
   C. Chest pain
   D. Dyspnea
   E. Purulent sputum

**Answer – A**

30. Which is a **WRONG** statement about cardiac metastasis in bronchogenic carcinoma?
   A. Most common mode of spread is by direct contiguous extension
   B. In majority of cases, cardiac metastases are clinically silent
   C. Pericardium is most commonly involved
   D. Cardiac involvement is more common with left sided tumors
   E. Cardiac involvement can lead to arrhythmia

**Answer - C.** Myocardium is more commonly involved than pericardium.

31. Which is a **WRONG** statement about pericardial cyst?
   A. Majority seen in right costophrenic angle
   B. Majority are diagnosed as incidental finding of chest imaging
   C. Definitive treatment is by surgical excision
   D. Can cause compression of adjacent structures
   E. Never seen on left side

**Answer – E.** It is more common on right side but can be but can be found almost anywhere adjacent to the heart.

32. Which is a **WRONG** statement regarding Lambert-Eaton myasthenic syndrome?
   A. Deep tendon reflexes are decreased or absent
   B. Muscular weakness decreases after contractions
   C. Ocular symptoms are rare
   D. Most common cause is small cell carcinoma of lung
   E. Muscular weakness affects arms more than the legs

**Answer: E.** Myasthenia gravis should be differentiated from Lambert-Eaton syndrome. Deep tendon reflexes are decreased or absent in Lambert-Eaton syndrome. Deep tendon reflexes are normal in myasthenia gravis. In Lambert-Eaton syndrome muscular weakness affects legs more than the arms. This
condition is due to antibodies against voltage-gated calcium channels. Lambert-Eaton syndrome is treated with 3, 4-diaminopyridine which blocks potassium channels in the distal motor terminal.

33. Which is a CORRECT statement?
   A. Adenocarcinoma is the most common cell type in lung cancer
   B. Lungs are the most common site for secondaries in cancer
   C. Diaphragmatic palsy is more common on right sided lung cancer
   D. Lung to same lung secondary is stage 4
   E. Pleural effusion in bronchogenic carcinoma is always stage 4

Answer – A. Most common site for secondaries in cancer is regional lymph nodes. Diaphragmatic palsy is more common on left sided lung cancer as left phrenic nerve is superficial and easily involved than the right. Pleural effusion in bronchogenic carcinoma can be Para malignant effusion where pleura is not involved by the cancer cells.

34. What is the INVESTIGATION OF CHOICE to identify distant secondaries?
   A. Bone scan
   B. PET CT
   C. USG
   D. Tumor marker estimation
   E. Bone scan with PET CT

Answer – B.

35. Lung parenchymal and mediastinal lymph node calcification is suggestive of ---
   A. Healed granulomatous disease
   B. Malignancy
   C. Chronic renal failure
   D. Hemosiderosis
   E. Active granulomatous disease

Answer – A

36. Which is NOT a content of anterior mediastinum?
   A. Substernal parathyroid
   B. Thymus gland
   C. Lymph nodes
   D. Descending aorta
   E. Substernal thyroid

Answer – D. Descending aorta is in posterior mediastinum.

37. Which is a WRONG statement regarding mediastinal lesion?
   A. More than 50% of mediastinal lesions are incidentally discovered
B. Thymoma can lead to gynecomastia
C. Neuroblastoma can present with diarrhea
D. Majority of asymptomatic mediastinal masses are benign
E. Most common symptom in mediastinal mass is due to compression of adjacent structures

**Answer** – B. Germ cell tumor of the mediastinum can lead to gynecomastia as paraneoplastic syndrome.

38. Which is a **WRONG** statement?
   A. Larger the size greater the chance for rupture in aortic aneurysm
   B. Thoracic aortic aneurysm is more commoner than abdominal aortic aneurysm
   C. Ascending thoracic aorta is the most common location of a thoracic aneurysm
   D. More common in elderly males
   E. Smokers have higher risk to develop aneurysm

**Answer** – B. Abdominal aorta is the most common site for aortic aneurysm.

39. Which is the **MOST COMMON** site for bronchogenic carcinoma?
   A. Left upper lobe
   B. Right upper lobe
   C. Middle lobe
   D. Right lower lobe
   E. Left lower lobe

**Answer** – B.

40. Which is a **WRONG** statement regarding Golden S-sign?
   A. Most often seen in right side
   B. Suggestive of lobar collapse
   C. Reverse shaped S
   D. Diagnostic of central bronchogenic carcinoma
   E. S sign can also be seen with the collapse of other lobes **Answer** – D. Golden S sign can occur in other conditions also which can lead external compression of a lobe leading to collapse. Mediastinal adenopathy or mass also can lead to external compression of a lobe.

41. What is the investigation in suspected pulmonary lymphangitic carcinomatosis for **PRESUMPTIVE** diagnosis?
   A. Sputum cytology for malignant cells
   B. Bronchoscopy and transbronchial biopsy
   C. HRCT Thorax
   D. Spirometry
   E. DLCO

**Answer** – C.
42. Which of the following is the **MOST COMMON** symptom in pulmonary lymphangitic carcinomatosis?

A. Cough  
B. Progressive breathlessness  
C. Hemoptysis  
D. Chest pain  
E. Wheezing  

**Answer – B.**

43. Which of the following is **NOT** a cause for persistent pneumothorax even after intercostal tube drain?

A. Intercostal tube size less than 18 F  
B. Positive pressure ventilation  
C. Malposition of intercostal tube  
D. Large Bronchopleural fistula  
E. Bronchial rupture  

**Answer: A.**

In pneumothorax size of the ICT tube does not influence the drainage as air can easily come out whatever is the size of the tube. Bronchopleural fistula, malposition or blockade of the tube is the most common causes for persistent pneumothorax after ICT drain.

44. Which of the following is not a radiological differential diagnosis for pneumothorax?

A. Large cyst  
B. Overlapping soft tissue margin  
C. Pneumopericardium  
D. Large cavity  
E. Bulla  

**Answer: C.**

Pneumopericardium can be easily differentiated from pneumothorax by chest radiograph. In pneumopericardium heart will be partially or completely surrounded by air, with the pericardium sharply outlined by air density on either side.

45. Which is the **LEAST COMMONLY** used technique used for obtaining tissue sampling in mediastinal tumors?

A. Thoracoscopy  
B. Mediastinoscopy  
C. Tran bronchial needle aspiration  
D. Percutaneous needle aspiration  
E. Open biopsy  

**Answer – E.**
46. Most common primary site in metastatic brain tumor is ---?
   A. Lung cancer
   B. Malignant melanoma
   C. Breast cancer
   D. Colon cancer
   E. Renal cell carcinoma

Answer – A

47. SIADH in bronchogenic carcinoma is **MOST COMMONLY** seen in which cell type?
   A. Squamous cell carcinoma
   B. Small cell carcinoma
   C. Large cell carcinoma
   D. Adenocarcinoma
   E. Carcinoid tumor

Answer – B.

48. Which of the following is **LEAST COMMON** site for secondaries from lung cancer?
   A. Skin
   B. Adrenal gland
   C. Bones
   D. Brain
   E. Liver

Answer - A

52. Which following bone is the **LEAST COMMON** site for secondaries from lung cancer?
   A. Spine
   B. Ribs
   C. Femur
   D. Sternum
   E. Metatarsals

Answer – E

49. Which is a **WRONG** statement?
   A. Bone scan useful to detect bony secondaries
   B. Whole body scan should be done to detect bony secondaries
   C. PET CT scan can detect bony secondaries
   D. Bone scan can be done in pregnancy
   E. Hot spots in the scan can be due to non cancerous conditions also

Answer – D. Pregnancy is a contra indication for bone scan.
50. Which is a **WRONG** statement about substernal goiter?
   A. Usually occurs in superior mediastinum
   B. Symptomatic substernal goiter needs surgery
   C. Can lead to sudden onset of breathlessness
   D. More common in elderly males
   E. Can cause SVC obstruction

   **Answer** – D. More common in females. Bleeding into the goiter can lead to sudden onset of breathlessness.

51. Which is a **WRONG** statement regarding substernal goiter?
   A. Can cause hoarseness of voice
   B. CECT neck with thorax is useful in diagnosis
   C. Negative iodine 131 scan excludes the diagnosis
   D. Tracheal deviation by the tumor in chest x-ray is a useful sign in diagnosis
   E. Can lead to wheezing and hoarseness of voice

   **Answer** – C

52. Which of the following is **NOT** a symptom in substernal goiter?
   A. Dyspnea
   B. Strider
   C. Hemoptysis
   D. Cough
   E. Dysphagia.

   **Answer** – C.

53. Which of the following can cause tracheal compression from posterior aspect?
   A. Thyroid swelling
   B. Superior Mediastinal tumor
   C. Bronchogenic carcinoma
   D. Enlarged mediastinal lymph node
   E. Aneurysm of blood vessels in neck

   **Answer** – D

54. Which is a **WRONG** statement?
   A. CT scan thorax is the usual investigation of choice in SVC obstruction.
   B. Contrast venography is the most conclusive diagnostic tool in SVC obstruction.
   C. Incomplete SVC obstruction is usually due to thrombosis in the vein
   D. SVC obstruction can lead to upper airway obstruction
   E. SVC originates in superior mediastinum

   **Answer** – C. Thrombosis usually leads to complete obstruction of SVC.
55. Which of the following is the **MOST COMMON** cause for SVC obstruction in a young male?
   A. Bronchogenic carcinoma  
   B. Malignant germ cell tumor in mediastinum  
   C. Thymoma  
   D. Hodgkin lymphoma  
   E. Non Hodgkin's Lymphoma  
   **Answer – E**

56. Which is **NOT** a complication of endo bronchial brachytherapy?
   A. Bleeding  
   B. Perforation  
   C. Infection  
   D. Tumor embolization  
   E. Broncho stenosis  
   **Answer – D**

57. Cavitating bronchogenic carcinoma more likely to be ----
   A. Squamous cell  
   B. Adenocarcinoma  
   C. Small cell carcinoma  
   D. Large cell carcinoma  
   E. Poorly differentiated carcinoma  
   **Answer – A**

58. Which is a **WRONG** statement regarding cavitating malignancy?
   A. Cavitation is associated with a worse prognosis.  
   B. Cavitation is rare in small cell carcinoma  
   C. Central necrosis is the main cause for cavitation  
   D. “Air-crescent sign” is diagnostic  
   E. Rapid growing tumors more likely to cavitate  
   **Answer – D. Air crescent sign is classically described in Aspergilloma.**

59. Which is **NOT** seen in Thymoma?
   A. Myasthenia gravis  
   B. Red cell Aplasia  
   C. Myocarditis  
   D. Hypogammaglobuliemia  
   E. Alcohol induced pain  
   **Answer – E. Alcohol induced pain occurs in lymphoma.**
60. In which of the following mediastinal lesions biopsy should **AVOIDED**?
   A. Cystic lesion
   B. Posterior mediastinal lesion
   C. Middle mediastinal lesion
   D. Anterior mediastinal lesion
   E. Suspected malignant mediastinal lesion

**Answer – A**

61. Which is **NOT** a feature of benign lesion?
   A. Smooth well defined borders
   B. Presence of calcification
   C. Tumor doubling time less than 180 days
   D. Small size (less than 3cm diameter)
   E. Stable over a period of 2 years

**Answer – C.**

62. What is the **MOST COMMON** symptom in chronic aspiration?
   A. Chest pain
   B. Vomiting
   C. Asthma like symptom
   D. Hemoptysis
   E. Chronic cough

**Answer – E**

63. Which of the following is **NOT** a radiological sign to differentiate bulla from pneumothorax?
   A. Area of hyper translucency
   B. Presence of visceral pleural line in pneumothorax
   C. Presence of double wall sign in case of bulla
   D. Bulla are concave toward lateral chest wall
   E. Bulla do not conform to the contour of costophrenic sulcus

**Answer:** A. Hyper-translucency occurs in both the conditions due to air trapping.

64. Which is the **MOST COMMON** posterior mediastinal tumor?
   A. Neurogenic Tumors
   B. Foregut Cysts
   C. Lymphoma
   D. Aortic aneurysm
   E. Esophageal neoplasm

**Answer – A**
65. Esophageal involvement in bronchogenic carcinoma is best detected by ---
   A. Upper GI scopy
   B. Barium swallow
   C. CT scan thorax
   D. MRI thorax
   E. Thoracoscopy

Answer – D

66. Which is a WRONG statement regarding esophageal involvement in bronchogenic carcinoma?
   A. Indicates advanced disease
   B. May lead to esophageal perforation
   C. Most common site is mid esophagus
   D. Dysphagia is the most common presenting symptom
   E. Radiotherapy is indicated when there is esophageal involvement

Answer - E

67. Which of the following is NOT a cause of bulla in lung?
   A. Smoking
   B. IV drug abuse
   C. Alpha-1 antitrypsin deficiency
   D. Marfan's syndrome
   E. Lymphangioleiomyomatosis

Answer: E. Causes cystic lung disease.

68. Which is a WRONG statement?
   A. Bronchogenic carcinoma can lead to dysphagia
   B. Esophageal carcinoma is the most common cause for acquired tracheo esophageal fistula
   C. Normal upper GI scopy excludes esophageal involvement in bronchogenic carcinoma
   D. Upper GI scopy should be done when a patient with bronchogenic carcinoma develops dysphagia
   E. Radiotherapy in a patient with posterior mediastinal lymph node in bronchogenic carcinoma can lead to perforation into esophagus

Answer –C

69. Which is a WRONG statement regarding esophageal involvement in bronchogenic carcinoma?
   A. Indicates advanced disease
   B. May lead to esophageal perforation
   C. Most common site is mid esophagus
   D. Dysphagia is the most common presenting symptom
   E. Always due to compression by mediastinal nodes

Answer – E.
70. In which condition biopsy is **MANDATORY** in a mediastinal lesion?
   A. Cystic lesion
   B. Probable benign solid tumor
   C. Radiological signs suggestive of malignancy
   D. \( \alpha \)-FP is highly elevated
   E. \( \beta \)-HCG is highly elevated
   **Answer - C**

71. Which is a **WRONG** statement about typical lung carcinoid?
   A. Slow growing
   B. Majority are peripheral tumors
   C. More common than atypical lung carcinoid
   D. Does not metastasize
   E. Majority present with cough and hemoptysis
   **Answer – B. Majority of typical lung carcinoid are central tumors**

72. Which of the following is **NOT** an indication for Bullectomy?
   A. Large single bulla with symptoms
   B. Bulla occupying more than 1/3 hemithorax
   C. Multiple bulla with chronic cor pulmonale
   D. Infected single large bulla
   E. Bulla with rapid increase in size and chest pain
   **Answer: C. Multiple bulla with chronic cor pulmonale is a contra indication for Bullectomy as post operative morbidity and mortality is high.**

73. Which of the following is a **RARE COMPLICATION** of bulla in the lungs?
   A. Secondary infection in the bulla
   B. Spontaneous pneumothorax
   C. Chronic cor pulmonale
   D. Large bulla causing pressure effects
   E. Hemoptysis
   **Answer: E. Hemoptysis is a rare complication of bulla.**

74. Which is **NOT** seen in carcinoid syndrome?
   A. Facial flushing
   B. Left heart failure
   C. Low blood pressure
   D. Diarrhea
   E. Wheezing
   **Answer – B**
75. Which is a **WRONG** statement about carcinoid tumor?
   A. Most common site is ileum  
   B. Carcinoid syndrome is rare  
   C. Bronchial carcinoid commonly associated with MEN type 2  
   D. Carcinoid syndrome more common in malignant carcinoid  
   E. Lung carcinoid can produce carcinoid syndrome without liver metastasis  
   Answer – C. Bronchial carcinoid commonly associated with MEN type 1.

76. Which is a **WRONG** statement about carcinoid tumor?
   A. Can lead to pellagra  
   B. Can lead to high blood pressure  
   C. Carcinoid syndrome is treated with octreotide  
   D. All symptoms in carcinoid tumor are due to serotonin  
   E. Flushing is the most common symptom in carcinoid syndrome  
   Answer – D

77. Which is **NOT** a feature of carcinoid crisis?
   A. Hypotension  
   B. Prolonged flushing  
   C. Bradycardia  
   D. Hyperglycemia  
   E. Bronchospasm  
   Answer – C

78. Which of the following tumor marker is **NOT** useful in intra thoracic tumors?
   A. Myo D1  
   B. Chromogranin  
   C. Calretinin  
   D. Neurone specific enolase  
   E. Human chorionic gonadotrophin  
   Answer – A.

79. Which is a **WRONG** statement?
   A. More than 50% of mediastinal masses are incidentally discovered.  
   B. Majority of benign mediastinal masses are asymptomatic  
   C. Most of the symptoms in mediastinal masses are due to compression of adjacent structures.  
   D. Neuroblastoma can present with gynacomastia  
   E. Thymoma can lead to SVC obstruction  
   Answer – D. Germ cell tumor produces gynacomastia

80. Which is **WRONG** statement regarding bronchogenic cyst?
   A. Usually has a patent communication with a bronchus  
   B. Most common primary cyst of the Mediastinum  
   C. Derived from the primitive foregut
D. Surgical excision is the treatment of choice
E. Majority are asymptomatic found incidentally on chest x ray

Answer – A.

81. Which of the following is LEAST LIKELY to cause mediastinal lymphadenopathy?
   A. Tuberculosis
   B. Sarcoidosis
   C. Bronchogenic carcinoma
   D. Esophageal carcinoma
   E. Rheumatoid arthritis

Answer – E.

82. Which of the following is NOT a characteristic of mediastinal tubercular lymphadenopathy?
   A. Right paratracheal lymph node enlargement
   B. Usually bilateral and hilar nodes are commonly enlarged
   C. Associated lung parenchymal lesions
   D. Central areas of relative low density and peripheral rim enhancement seen in CT scan.
   E. Usually multiple nodes are involved

Answer – B.

83. Which of the following is NOT a characteristic of mediastinal lymphadenopathy in Sarcoidosis?
   A. Hilar lymphadenopathy
   B. Right paratracheal
   C. Mediastinal lymphadenopathy without hilar involvement is rare
   D. Unilateral mediastinal lymphadenopathy is rare
   E. Calcification occurs early in the course of the disease

Answer – E.

84. Which of the following is NOT a characteristic of mediastinal lymphadenopathy due to Lymphoma?
   A. Pressure effect on adjacent structures
   B. Coalescence of lymph nodes
   C. Central cavitation
   D. Peripheral calcification of lymph node
   E. Prevascular and retro tracheal lymph node enlargement

Answer – D

85. Which of the following is NOT a complication of intercostal tube drain into a bulla?
   A. Pneumothorax.
   B. Persistent Bronchopleural fistula
   C. Surgical emphysema
   D. Re-expansion pulmonary edema
**Answer:** D: Since bulla is a lung parenchymal lesion re-expansion pulmonary edema does not occur as a complication.

86. Most serious complication of Boerhave's syndrome is ---
   A. Mediastinitis
   B. Lung abscess
   C. Aspiration pneumonia
   D. Lung abscess
   E. Empyema

**Answer – A.**

87. Tracheal deviation to **OPPOSITE** side is characteristic of which of the following tumor?
   A. Substernal goiter
   B. Bronchogenic carcinoma
   C. Teratoma
   D. Neurogenic tumor
   E. Germ cell tumor

**Answer-A**

88. A 54 year old lady admitted with complete heart block with bilateral ground glass opacities in chest x-ray. She has no evidence of ischemic heart disease. Her ECHO is normal. What is the **MOST LIKELY** diagnosis?
   A. Scleroderma
   B. Relapsing polychondritis
   C. Sarcoidosis
   D. Rheumatoid arthritis
   E. SLE

**Answer - C**

89. In bronchogenic carcinoma **MOST COMMON** cell type associated with Para-neoplastic syndrome is ---
   A. Small cell carcinoma
   B. Large cell carcinoma
   C. Squamous cell carcinoma
   D. Adenocarcinoma
   E. Bronchoalveolar cell carcinoma

**Answer - A**
90. In bronchogenic carcinoma gynacomastia is a Para-neoplastic syndrome is seen in ---
   A. Small cell carcinoma
   B. Large cell carcinoma
   C. Squamous cell carcinoma
   D. Adenocarcinoma
   E. Broncho alveolar cell carcinoma

**Answer-D**

91. Superior vena cava obstruction is more common in ---carcinoma Lung
   A. Small cell carcinoma
   B. Large cell carcinoma
   C. Squamous cell carcinoma
   D. Adenocarcinoma
   E. Broncho alveolar cell carcinoma

**Answer –A**

92. Which of the following is **NOT** a feature of crushing's syndrome
   A. Moon face
   B. Buffalo hump
   C. Centrifugal obesity
   D. Skin pigmentation
   E. Proximal muscle weakness

**Answer-C.** Centripetal obesity is characteristic feature of crushing's syndrome. In addition, they may have hirsutism, hypertension, and diabetes mellitus.

93. Which of the following is **NOT** a cystic lesion in the mediastinum?
   A. Cystic thymoma
   B. Bronchogenic cyst
   C. Esophageal duplication cyst
   D. Neurenteric cyst
   E. Pericardial cyst

**Answer A.** Cystic thymoma is cyst like lesion, not a true cystic lesion.

94. What is the definitive treatment for cystic lesion in the mediastinum?
   A. Intercostal tube drain
   B. Thoracoscopy and drainage
   C. Repeated pleural aspiration
   D. Thoracotomy and cyst excision
   E. Transbronchial aspiration from cyst

**Answer-D.** Cystic lesion in mediastinum is a benign lesion. Hence if the patient is fit for surgery, best option is surgical excision.
95. Which of the following is **NOT** a complication of aspiration of a cystic lesion?
   A. High chances of recurrence
   B. Leakage during aspiration
   C. Malignant transformation
   D. Infection of the cyst
   E. Rupture of the cyst

   **Answer** C. Long standing cystic lesion may undergo malignant transformation due to changes in the cyst wall and epithelium. But aspiration does not predispose to malignant transformation.

96. Which is **WRONG** statement regarding bronchogenic cyst
   A. Congenital anomaly of for gut diverticulum
   B. Intrapulmonary bronchogenic cyst is rare
   C. Symptoms indicate malignant transformation
   D. Majority are asymptomatic
   E. Seen as a dense homogenous opacity in chest x-ray

   **Answer** C. Malignant transformation is rare. Symptoms are due to pressure effect or rupture of the cyst.

97. Which is **NOT** a feature of mediastinal lesion in chest x-ray?
   A. Hilum overlay sign
   B. No air bronchogram
   C. Acute margin with the lung
   D. Obliterated cardiophrenic angle
   E. Obliterated retrosternal clear space

   **Answer** C. Mediastinal lesion will lead to obtuse margin with the lung in chest x-ray.

98. What is the **MOST COMMON** cause for intra thoracic hematoma?
   A. Trauma
   B. Following thoracic surgery
   C. Bleeding diathesis
   D. Anti coagulant therapy
   E. Central line insertion

   **Answer** A.
Obstructive airway diseases

1. A 65-year-old known COPD patient on treatment is brought to the emergency room. His BMI is 36kg/m². He is found to be drowsy. Which of the following is LEAST LIKELY cause for his drowsiness?
   A. Hypercapnia
   B. Obesity hypoventilation syndrome
   C. Hyponatremia
   D. Hyperthyroidism
   E. Overdose of sedatives

Answer D. Hyperthyroidism does not lead to drowsiness. Hypercapnia and Hyponatremia are the most common causes for drowsiness in COPD patients especially during acute exacerbation. Since patient is morbidly obese, Obesity hypoventilation syndrome should be considered as a differential diagnosis. Psychological disturbances like anxiety and depression are common in COPD patients. Hence drug history should always be elicited.

2. Secondary polycythemia in COPD WILL NOT lead to ---
   A. Increased incidence of Stroke
   B. Lethargy
   C. Increased incidence of Myocardial ischemia
   D. Tissue hypoxia
   E. Metabolic alkalosis

Answer E. Sluggish circulation due to increased blood viscosity leads to increased incidence of stroke, myocardial infarction, tissue hypoxia and lethargy in patients with polycythemia. Metabolic acidosis can occur due to increased work of breathing and sluggish circulation.

3. Which is a WRONG statement regarding secondary polycythemia in COPD?
   A. Less common than anemia in COPD patients
   B. Increases symptoms of COPD
   C. Phlebotomy is the standard treatment
   D. Increases the risk of pulmonary thromboembolism
   E. Symptoms may mimic obstructive sleep apnea

Answer C. Secondary polycythemia is treated primarily by treating the underlying condition causing the disorder. In COPD if hypoxia is treated properly hemoglobin level reduces back to normal. This will take 3 to 6 months. Until the underlying condition is controlled, phlebotomy may be done to relieve the symptoms and prevent complications. In most instances, a pint of blood is drained from the patient as needed and tolerated, until the hematocrit reaches an acceptable level.
4. Which of the following associated condition or mechanism is LEAST LIKELY to cause secondary polycythemia in a COPD patient?
   A. Heavy Smoking
   B. Chronic Hypoxia
   C. Obstructive sleep apnea
   D. Chronic hypercapnia
   E. Chronic pulmonary thrombo embolism
   Answer-D. Hypercapnia does not lead to polycythemia

5. What is the MOST COMMON cause for Hypercapnic respiratory failure?
   A. AECOPD
   B. Kyphoscoliosis
   C. Degenerative neuro muscular diseases
   D. Obesity hypoventilation syndrome
   E. Hypothyroidism
   Answer-A

6. Which of the following ventilatory change is NOT useful to treat hypercapnia?
   A. Increase PEEP
   B. Decrease inspiratory time
   C. Increase respiratory rate
   D. Increase Fio2
   E. Decrease expiratory time
   Answer-E. Expiratory time should be increased to treat hypercapnia

7. Which is a WRONG statement regarding COPD?
   A. Aim for gradual weight loss if BMI >30kg/m2
   B. Consider prescribing oral nutritional supplement if BMI < 20kg/m2
   C. People with COPD spend more energy for breathing
   D. Obesity is more common than malnutrition in COPD patients
   E. Calcium and vitamin D supplementation is recommended for COPD patients receiving long term steroid.
   Answer- D. Cachexia and weight loss are the systemic effects of COPD and these are more common than obesity in COPD patients.

8. Best inhalation device for long-term use at home for COPD patients is ----
   A. Dry powder inhaler
   B. Metered dose inhaler with spacer
   C. Metered dose inhaler
D. Ultrasonic nebulizer
E. Jet nebulizer

Answer-B.

9. Which is a **WRONG** statement regarding long term home oxygen therapy in COPD?
   A. Does not lead to Oxygen toxicity
   B. May reduce hypercapnia
   C. Usually treatment is lifelong once initiated
   D. May halt the progression of Corpulmonale
   E. Should be used at least 8 hours per day

   **Answer - D.** Oxygen is not stored in the body. Hence it has to be given continuously if there is hypoxia. In COPD patients who require long term home oxygen, it should be used for more than 16 hours.

10. A 70-year-old patient with COPD admitted with pneumothorax. Chest x-ray shows less than 15% lung collapse. Patient is acutely breathless. What is the best next step in management?
   A. Bronchodilators and oxygen
   B. Mechanical ventilation
   C. Intercostal tube drain
   D. Initiate NIV
   E. Needle aspiration of pneumothorax

   **Answer - C.**

11. Reduction in mortality following smoking cessation is mainly due to decrease in mortality from ---
   A. Cardio vascular events
   B. COPD
   C. Lung cancer
   D. Stroke
   E. Peripheral vascular disease

   **Answer - A**

12. Which is a **WRONG** statement regarding Asthma?
   A. Mediated by T lymphocytes
   B. CD4 cells increase
   C. H2 receptor stimulation causes bronchospasm
   D. TH2 response
   E. Variable airflow obstruction

   **Answer - C.**
13. Which is the most effective medication in relieving all the symptoms of allergic rhinitis?
   A. Montelukast
   B. Intranasal Glucocorticosteroids
   C. Nasal decongestant
   D. Antihistamine
   E. Nasal decongestant

   Answer - B.

14. Which is a WRONG statement regarding Asthma in a smoker?
   A. Associated with more severe asthma
   B. Associated with more rapid decline in FEV₁
   C. Steroid responsive
   D. Neutrophilic inflammation in airways
   E. More prone to recurrent exacerbations

   Answer - C.

15. Which is a WRONG STATEMENT regarding Non-Allergic Asthma?
   A. More common in males
   B. More severe
   C. Less responsive to steroids
   D. May lead to progressive airway obstruction
   E. Late onset, usually occurs in adults after age 40 years

   Answer – A. It is more common in females.

16. Lead one sign is seen in ---
   A. Asthma
   B. COPD
   C. ILD
   D. Anterior wall MI
   E. Massive pulmonary embolism

   Answer – B.

17. Which of the following ECG changes is NOT due to emphysema?
   A. Poor progression of R wave
   B. Multifocal ectopic
   C. Tall P wave
   D. Right axis deviation
   E. Right bundle branch block

   Answer - B
18. Which of the following is NOT an indication for ABG in a COPD patient?
   A. For assessing need for long term home oxygen
   B. Stage 4 COPD
   C. FEV1 less than 60% predicted
   D. Clinical signs of respiratory failure
   E. Sings of Corpulmonale

**Answer - C.** FEV1 less than 30% predicted is an indication for ABG in COPD.

19. Which of the following is LEAST LIKELY to cause respiratory alkalosis in acute exacerbation of breathlessness in a COPD patient?
   A. Pneumothorax.
   B. Cardiogenic pulmonary edema.
   C. Pulmonary embolism.
   D. Pneumonia.
   E. Acute infective exacerbation of COPD

**Answer – E.** AECOPD leads to hypercapnic respiratory failure

20. Which of the following is LEAST LIKELY to cause hemoptysis in a patient with COPD?
   A. Bronchogenic carcinoma
   B. Bronchiectasis
   C. Pulmonary hypertension
   D. Pulmonary tuberculosis
   E. Pulmonary thrombo embolism

**Answer – C**

21. Which lobe is spared in bronchial thermoplasty?
   A. Right upper lobe
   B. Lingula
   C. Middle lobe
   D. Left lower lobe
   E. Right lower lobe

**Answer – C**

22. Which is a WRONG statement about COPD in non-smokers?
   A. Milder disease with fewer symptoms
   B. Lesser systemic inflammation
   C. Lesser risk for cardiovascular co morbidity
   D. Lesser risk for pneumonia
E. Lesser risk for lung cancer

**Answer – D.** Risk for pneumonia is more. They are more prone to recurrent infective exacerbations and pneumonia.

23. Which of the following is **NOT** an indication for CT scan chest in a COPD patient?
   - A. Suspected lung cancer
   - B. To evaluate disproportionate dyspnea
   - C. To determine the severity of COPD
   - D. For planning LVRS
   - E. For planning lung transplantation

**Answer – C.**

24. Which is a **WRONG** statement regarding treatment in COPD?
   - A. Combination LABA+LAMA is more effective than monotherapy for preventing exacerbations
   - B. Using multiple drugs in combination may increase adverse effects
   - C. LAMA is more effective than LABA in decreasing exacerbations in COPD
   - D. LABA/ICS can be used as first choice for patients with Asthma COPD overlap
   - E. ICS increases risk of pneumonia

**Answer – B**

25. Which is a **WRONG** statement?
   - A. Slow acting bronchodilators are more effective in symptom control than those with a faster onset of action
   - B. Fast acting bronchodilators are useful in case of missed dose
   - C. Adherence is lower for medications that do not have an immediate effect on symptoms.
   - D. Indacaterol has fast onset of action
   - E. Indacaterol should not be used in AECOPD

**Answer – A**

26. Which is a **WRONG** statement?
   - A. Spirometry is important for diagnosis and predicting long term prognosis of COPD
   - B. Choice of pharmacotherapy depends on symptoms and exacerbations history
   - C. LABA/LAMA combination is now preferred bronchodilator therapy for Group B, C, and D patients
   - D. In severe (group D) patients, ICS can be added if patient is further exacerbating on LABA+LAMA
   - E. ICS once started, should not be withdrawn in a COPD patient

**Answer – E.**
27. Which is **NOT** a feature of untreated hypercapnic respiratory failure?
   A. Decreased level of consciousness
   B. Poor effort while breathing
   C. Headache
   D. Bounding pulse
   E. Normal Spo2

**Answer – E.**

28. Which of the following is **CONTRA INDICATION** for Bullectomy?
   A. Severe dyspnea due to giant bulla
   B. Poorly defined bulla on chest imaging
   C. Spontaneous secondary pneumothorax
   D. Chest pain due to bulla
   E. Repeated infection

**Answer- B**

29. Which of the following is associated with highest incidence of pneumothorax?
   A. Centriacinar (Centrilobular) Emphysema
   B. Pan acinar (Pan lobular) Emphysema
   C. Distal Acinar (Para septal) Emphysema
   D. Irregular Emphysema
   E. Equal chances in all

**Answer – C**

30. Which of the following is **DIAGNOSTIC** investigation in pulmonary embolism?
   A. 2 D echo
   B. Contrast enhanced CT scan of thorax
   C. Pulmonary angiogram
   D. CT pulmonary angiogram
   E. D dimer

**Answer – C**

31. Which of the following is a screening test to rule out massive pulmonary embolism?
   A. Two dimensional echo
   B. Contrast enhanced CT scan of thorax
   C. Pulmonary angiogram
   D. CT pulmonary angiogram
   E. D dimer

**Answer – A**
32. Which of the following is NOT a clinical manifestation of pulmonary embolism?
   A. Sudden death
   B. Pulmonary hypertension with no other obvious cause
   C. Sudden loss of consciousness with hypotension
   D. Hemoptysis
   E. Fever (PUO)

   **Answer – E**

33. Which is a **WRONG** statement regarding pulmonary embolism?
   A. Can occur at any age group
   B. More common in elderly
   C. Diagnosis is often missed
   D. Requires lifelong anticoagulants
   E. Most common symptom is breathlessness

   **Answer – D**

34. Irregular Emphysema is caused by ----
   A. Healed inflammatory diseases
   B. Smoking
   C. Exposure to silica dust
   D. HIV infection
   E. α1 antitrypsin deficiency

   **Answer – A**

35. Which is most **COMMON** type of emphysema in smokers?
   A. Centriacinar (Centrilobular) Emphysema
   B. Pan acinar (Pan lobular) Emphysema
   C. Distal Acinar (Para septal) Emphysema
   D. Irregular Emphysema
   E. Equal chances for all the above types

   **Answer – A**

36. Which is **NOT** seen in patients with obstructive sleep apnea?
   A. Weight gain
   B. Daytime hypercapnia
   C. Cardiac arrhythmia during sleep
   D. Uncontrolled hypertension
   E. Impaired memory

   **Answer – B.**
38. Which is NOT seen in COPD?
   A. Decrease in expiratory reserve volume
   B. Increase in total lung capacity
   C. Increase in residual volume
   D. Increase in inspiratory capacity
   E. Increase in functional residual capacity

**Answer – D**

40. A 16-year-old boy admitted following an accident is found to have hypercapnic respiratory failure. Which of the following is LEAST LIKELY cause for his hypercapnia?
   A. Lung contusion
   B. High spinal cord injury
   C. Head injury
   D. Upper airway obstruction
   E. Opioid overdose

**Answer – A.**

41. Which is NOT a treatment for COPD?
   A. Lung volume reduction surgery
   B. Lung transplantation
   C. Bronchial thermoplasty
   D. Bullectomy
   E. Bronchodilators

**Answer – C.**

42. Which is a characteristic feature in Asthma?
   A. Variable airflow obstruction
   B. Hyperinflation of lung
   C. Reduced lung elastic recoil
   D. Decrease in DLCO
   E. Submucosal fibrosis

**Answer – A.**

43. Which is NOT a feature in COPD?
   A. Hyperinflation
   B. Airway smooth muscle spasm
   C. Small airway Fibrosis
   D. Alveolar disruption
   E. Air trapping

**Answer – B.**
44. Which is a **WRONG** statement regarding both Asthma and COPD acute exacerbation?
   A. Systemic steroids are used for treatment during acute exacerbation
   B. Short acting Beta 2 agonists are the drug of choice as bronchodilators
   C. Noninvasive ventilation is useful
   D. GERD is a cause for exacerbation
   E. Supplemental oxygen in case of hypoxia

**Answer – C.**

45. Which is a **WRONG** statement regarding NIV in COPD?
   A. Reduces work of breathing
   B. May decrease cardiac output
   C. May not be effective if patient effort is poor
   D. May not be useful when initial Respiratory rate is more 35/minute
   E. Useful in patients with respiratory acidosis

**Answer – D**

46. Part of the lung involved in emphysema is ---
   A. Acinus
   B. Terminal bronchiole
   C. Lobar bronchus
   D. Major bronchi
   E. Interstitium

**Answer – A**

48. Which of the following is **NOT** a paraneoplastic manifestation in Thymoma?
   1. Cushing's syndrome
   2. Red cell aplasia
   3. Myocarditis
   4. Hypogammaglobinemia
   5. Gynecomastia

**Answer – E**

49. Which is a **FEATURE** of in Bronchial asthma?
   A. TNF Alpha
   B. Neutrophilic airway inflammation
   C. IL 8
   D. CD 4+ cells
   E. Oxidative stress

**Answer – D**
50. Best candidates for lung volume reduction surgery are ---
   A. Predominantly upper lobe emphysema and low exercise capacity.
   B. Predominantly upper lobe emphysema and high exercise capacity
   C. Lower lobe emphysema and low exercise capacity.
   D. Heterogeneous emphysema and low exercise capacity
   E. Lower lobe emphysema and high exercise capacity.

Answer – A

51. Which is a WRONG statement about COPD?
   A. Preventable disease
   B. Can be diagnosed before the onset of symptoms
   C. Smoking cessation halts the progression of COPD
   D. Cardiac disease is the most common co morbidity
   E. Higher risk of lung cancer in mild and moderate COPD

Answer – C

52. Which is NOT seen in Patients with Obstructive sleep apnea?
   A. Weight gain
   B. Daytime hypercapnia
   C. Cardiac arrhythmia during sleep
   D. Uncontrolled hypertension
   E. Impaired memory

Answer – B

53. Respiratory alkalosis is more likely to occur in ---
   A. Bilateral diaphragmatic paralysis
   B. Acute severe exacerbation of COPD
   C. Mechanical ventilation
   D. Narcotic drug over dosage
   E. Gillian Barrie syndrome

Answer – C

55. Which of the following is LEAST LIKELY to cause hemoptysis in a patient with COPD?
   A. Bronchogenic carcinoma
   B. Bronchiectasis
   C. Pulmonary hypertension
   D. Pulmonary tuberculosis
   E. Pulmonary thrombo embolism

Answer – C
56. Which of the following is LEAST LIKELY to cause progressive dyspnea, chronic cough, streaky hemoptysis, wheezing and change in voice?
   A. Atrial septal defect
   B. Bronchogenic carcinoma
   C. Mediastinal tumor
   D. Endobronchial Tuberculosis
   E. Chronic pulmonary thrombo embolism
   **Answer – E**

57. Which is a WRONG statement regarding Asthma in a smoker?
   A. Associated with more severe asthma
   B. Associated with more rapid decline in FEV₁
   C. Steroid responsive
   D. Neutrophilic inflammation in airways
   E. More prone to recurrent exacerbations
   **Answer – C.**

58. Which is a WRONG statement regarding GERD & Asthma?
   A. GERD may worsen Asthma symptoms
   B. GERD with Asthma is more common in younger age group
   C. Asthma may worsen GERD symptoms
   D. People with severe Asthma that is resistant to standard asthma treatment are more likely to have GERD
   E. GERD may cause Asthma like symptoms
   **Answer – B.**

59. Which one is NOT a systemic effect of COPD?
   A. Anemia
   B. Osteoporosis
   C. Weight loss
   D. Skeletal muscle dysfunction
   E. Corpulmonale
   **Answer – E.**

60. Which is NOT seen in COPD?
   A. TNFAlpha
   B. Neutrophilic airway inflammation
   C. IL 8
   D. CD 4+ cells
   E. Oxidative stress
   **Answer – D.**
61. World Asthma day is on ---
   A. First Tuesday of May every year
   B. 4th of May every year
   C. 5th of May every year
   D. 6th of May every year
   E. Second Tuesday of May every year

   Answer – A

63. Which is a **WRONG** statement regarding malnutrition in COPD?
   A. Can impair pulmonary function
   B. Increases susceptibility to infection
   C. More prevalent in mild COPD
   D. Lowers exercise capacity
   E. Increases the risk for mortality

   Answer – C

64. Which of the following is **NOT** associated with increased risk of osteoporosis in COPD?
   A. Obesity
   B. Long term Glucocorticosteroids
   C. Smoking
   D. Vitamin D deficiency
   E. Decreased mobility.

   Answer – A.

65. Which is a **WRONG** statement?
   A. COPD patients who have hypercapnia may benefit from a high fat low carbohydrate diet
   B. Avoid overfeeding in COPD as excess calories lead to increased production of carbon dioxide
   C. Respiratory quotient for carbohydrate is 0.7
   D. Restrict salt intake in COPD with Corpulmonale
   E. Well-conditioned muscles use less energy

   Answer – C.

66. Which is a **WRONG** statement regarding mood disorders in COPD?
   A. Depression and anxiety are under diagnosed in COPD patients.
   B. More in Females
   C. Less in current smokers
   D. Increases morbidity and mortality in COPD
   E. Pulmonary rehabilitation reduces depressive and anxiety symptoms in COPD patients

   Answer – C
67. Mainstay of treatment in symptomatic COPD is ---
   A. Inhaled bronchodilators
   B. Pulmonary rehabilitation
   C. Inhaled Anticholinergics
   D. Inhaled corticosteroid
   E. Smoking cessation

**Answer – A.**

68. Which is NOT a part of AECOPD definition?
   A. Increase in dyspnea
   B. Increase in sputum
   C. Purulent sputum
   D. Fever
   E. Increase in medication requirement

**Answer – D**

69. World COPD day is on ---
   A. First Wednesday of May
   B. Second Wednesday of June
   C. May 31st every year
   D. Third Wednesday of November
   E. Second Tuesday of September

**Answer – D.**

70. A 68-year-old male patient with very severe COPD admitted to hospital with acute exacerbation. He had 4 hospital admissions in the last one year due to AECOPD. Which is the most likely organism?
   A. Pseudomonas
   B. Moraxella
   C. S.Pneumoniae
   D. H.Influenza
   E. E.coli

**Answer - A**

71. A 72-year-old male patient admitted to ICU with AECOPD with hypercapnic respiratory failure. Which of the following is NOT an indication for invasive mechanical ventilation?
   A. Unresponsive to pain
   B. Initial respiratory rate > 30/minute
   C. Hypotension with arrhythmia
D. Paradoxical respiration
E. Severe respiratory acidosis

Answer – B.

72. Which of the following is NOT useful for assessing severity of COPD?
   A. Frequency of exacerbations
   B. Quality of life assessment
   C. Exercise capacity
   D. FEV1
   E. Body weight

Answer – E

73. Best inhalation device for long-term use at home for COPD patients is ---
   A. Dry powder inhaler
   B. Metered dose inhaler
   C. Ultrasonic nebulizer
   D. Metered dose inhaler with spacer
   E. Jet nebulizer

Answer – D.

74. Choice of antibiotic in AECOPD DOES NOT depend on ---
   A. Total leukocyte count
   B. Severity of exacerbation
   C. Previous antibiotic used
   D. Co morbid illnesses
   E. Severity of COPD

Answer – A.

75. Which is a WRONG statement regarding long term home oxygen therapy in COPD?
   A. Does not lead to Oxygen toxicity
   B. May decrease Pco2 retention
   C. Usually treatment is lifelong once initiated
   D. Should be used at least 12 hours per day
   E. May halt the progression of Corpulmonale

Answer – D.

79. Which of the following is MOST LIKELY to cause hypoxic respiratory failure?
   A. AECOPD
   B. Severe kyphoscoliosis
   C. Neuro muscular diseases
D. Obesity hypoventilation syndrome
E. Massive pulmonary embolism

Answer – E.

80. Which is a **WRONG** statement regarding Tiotropium?
   A. Faster onset of action than Ipratropium
   B. Once daily dose
   C. Preferred over Ipratropium in long-term treatment of stable COPD
   D. Can be combined with LABA
   E. Can be used in the treatment of Asthma COPD overlap

Answer – A

81. Which is a prodrug?
   A. Beclomethasone
   B. Fluticasone
   C. Prednisolone
   D. Methyl prednisolone
   E. Ciclesonide

Answer – E

82. A 78-year-old patient admitted with AECOPD. He is found to be drowsy. Which of the following is **LEAST LIKELY**?
   A. Hypercapnic respiratory failure
   B. Hyponatremia
   C. CVA
   D. Acute anxiety attack
   E. Sedative overdose

Answer – D

83. A 56-year-old smoker has cough since 2 months and two episodes of streaky hemoptysis. Physical examination and chest x ray is normal. What is the next **DIAGNOSTIC** investigation?
   A. HRCT thorax
   B. Thoracic ultrasound
   C. Bronchoscopy
   D. Spirometry with BDRT
   E. Thoracoscopy

Answer C.
84. A 78-year-old lady bedridden for 3 months following fracture femur has sudden onset of cough and severe breathlessness. Which of the following is LEAST likely?
   A. Pulmonary embolism
   B. Cardiogenic pulmonary edema
   C. Aspiration of gastric contents
   D. Pleural effusion
   E. Pneumothorax

Answer - D

85. Montelukast is ---
   A. Leukotriene receptor 1 antagonist
   B. Leukotriene receptor 2 antagonist
   C. Lipo-oxygenase enzyme inhibitor
   D. Anti-histamine
   E. Anticholinergic

Answer – A

86. Which is a WRONG statement about Montelukast?
   A. Controller medication in Asthma
   B. More potent when combined with Antihistamine
   C. Increases Airway tone in Chronic Asthma
   D. More potent than Steroids in Asthma
   E. Should not be used long term.

Answer - D

87. Which is a WRONG statement about Montelukast?
   A. Can be used as monotherapy in Mild Asthma as controller medication
   B. Useful in treating Aspirin induced Asthma
   C. Can used to treat Acute exacerbation of Asthma
   D. Useful to treat exercise induced Asthma
   E. Can be used in children above age 2 years

Answer - C

88. First step in treatment of COPD is ---
   A. Pulmonary rehabilitation
   B. Removal of risk factors
   C. Inhaled steroid
   D. Bronchodilators
   E. Smoking cessation

Answer – B.
89. Which of the following is NOT useful in treating COPD
   A. Inhaled corticosteroids
   B. Inhaled bronchodilators
   C. Ipratropium
   D. Montelukast
   E. Salbutamol

   Answer - D

91. Ambroxol is ---
   A. Mucolytic
   B. Mucokinetic
   C. Expectorant
   D. Muco regulator
   E. Anti-histamine

   Answer - B

92. Bronchial Asthma is type --- hypersensitivity reaction.
   A. I
   B. II
   C. III
   D. IV
   E. 1 AND IV

   Answer – A.

94. Which of the following is RELIEVER medication in acute Asthma
   A. LABA
   B. Montelukast
   C. Inhaled corticosteroid
   D. Tiotropium
   E. Systemic corticosteroid

   Answer - E

95. Oropharyngeal deposition is maximum with ---
   A. Metered dose inhaler
   B. Dry powder inhaler
   C. Nebulizer
   D. MDI -SPACER
   E. Equal in MDI and DPI

   Answer – B.
95. Which of the following is **NOT** an advantage of Formetarol over Salmetarol?
   A. Rapid onset
   B. Short duration of side effect
   C. Convenient twice daily dosing
   D. Response increase with dose
   E. No cumulative side effect.
   **Answer - C**

96. Which is the **MOST COMMON** cause for exacerbation of Asthma?
   A. Allergic rhinitis
   B. Viral upper respiratory infections
   C. Physical stress
   D. Psychological stress
   E. NSAID ingestion
   **Answer – A.**

97. Which symptom of Allergic rhinitis is **NOT** relieved by Antihistamine?
   A. Sneezing
   B. Rhinorrhea
   C. Throat itching
   D. Nasal block
   E. Nasal itching
   **Answer - D**

98. Allergic rhinitis and Asthma are mediated by **WHICH** antibody?
   A. IgG
   B. IgM
   C. IgG and IgM
   D. IgE
   E. IgF
   **Answer - D**

99. Which Antihistamine can be given safely in patients with cardiac arrhythmia?
   A. Rupatidine
   B. Fexofenadine
   C. Levocetrizine
   D. Loratidine
   E. Citrizine
   **Answer – A.**
100. Which is NOT a symptom in Allergic Rhinitis?
   A. Repetitive sneezing
   B. Post nasal discharge
   C. Rhinorrhea
   D. Nasal Block
   E. Nasal itching

   Answer - B

101. A 68-year-old patient admitted with AECOPD. Which is NOT an indication for ABG in this patient on admission?
   A. Clinical features suggestive of respiratory failure
   B. Signs of Cor pulmonale
   C. For assessing the need for long term home oxygen
   D. SPO2 78% on room air
   E. Drowsy on admission

   Answer – C.

102. A 56-year-old COPD patient with mild airway obstruction in PFT on evaluation is found to have severe PAH. Which of the following is LEAST LIKELY to cause severe PAH in this patient?
   A. Inadequate treatment with bronchodilators
   B. Pulmonary embolism
   C. ILD
   D. Obesity hypoventilation syndrome
   E. Primary pulmonary hypertension

   Answer - A

103. Which of the following is NOT a predisposing cause for pulmonary embolism in COPD?
   A. Chronic Corpulmonale
   B. Anemia
   C. Dehydration during acute exacerbation
   D. Immobility
   E. Associated bronchogenic carcinoma

   Answer - B

104. A 76-year-old male, known case of COPD, who was on regular medications, was brought to the emergency room with acute exacerbation of breathlessness. He complained of sudden onset of right sided pleuritic chest pain following a bout of cough in the morning. Chest pain was followed by rapidly progressive breathlessness. He had no preceding history of fever, purulent sputum, cardiac or gastrointestinal symptoms. No history of trauma. Which of the following is the MOST LIKELY cause for his symptoms?
A. Gastro esophageal reflux disease
B. Pneumonia
C. Secondary spontaneous pneumothorax
D. Cardiogenic pulmonary edema
E. Liver abscess

**Answer: C.** This is the classical presentation of Secondary spontaneous pneumothorax (SSP). COPD is one of common causes for developing SSP due to rupture of emphysematous bulla. This patient had no gastro intestinal or cardiac symptoms to suspect gastro esophageal reflux disease or cardiogenic pulmonary edema. He had no fever, no purulent sputum to suspect pneumonia. Liver abscess is less likely as he had no right hypochondriac pain and the onset of symptoms is acute and breathlessness is not a feature of uncomplicated liver abscess.

105. In which of the following lung disease secondary spontaneous pneumothorax is **NOT** common?
   A. COPD
   B. Staphylococcal pneumonia
   C. Bronchial asthma
   D. Pulmonary tuberculosis
   E. Sarcoidosis

**Answer: E.** Compared to other lung diseases mentioned above SSP is not common in sarcoidosis.

106. A smoker who has to undergo elective surgery, smoking should be stopped how many weeks before surgery?
   A. 2
   B. 4
   C. 6
   D. 8
   E. 10

**Answer – D.**

108. Which is a **WRONG** statement about Asthma?
   A. Chronic airway inflammation
   B. Mediated through CD4 lymphocytes
   C. Airflow obstruction is always reversible
   D. IgE mediated hypersensitivity reaction
   E. Usually does not lead to permanent changes in airways

**Answer – C**

109. Treatment plan in Asthma does not depend on ---
   A. Severity of Asthma before starting treatment
   B. Level of Asthma control while the patient is on treatment
C. Gender of the patient
D. Serum IgE level
E. BMI

Answer - C

109 Which is a **WRONG** statement?
A. Nicotine addiction is genetically mediated
B. Nicotine acts on receptors in mesolimbic system
C. Nicotine modulates release of dopamine
D. Bromocriptine increases smoking
E. Smoking cessation may lead to weight gain

Answer - D

110. GINA stands for ---
A. Global initiative against asthma
B. Global initiative for asthma
C. Goals of asthma therapy
D. Goals of inhalation therapy in Asthma
E. Global initiative against prevention of asthma deaths

Answer – A

111. Gina was started in year ---
A. 1993
B. 1994
C. 1998
D. 2000
E. 2002

Answer - A

112. Which is a **WRONG** statement regarding SMART therapy?
A. Decreases severe exacerbations
B. Decreases use of systemic steroids
C. Increases dose of Inhaled steroids on Long-term
D. Better patient compliance
E. Formetarol is the bronchodilator

Answer - C

113. Ideal Particle size required in Inhaled medications is ---
A. 2-5 micron
B. 5 – 7 micron
C. 6 – 8 micron
D. 9 – 12 micron
E. 13 – 15 micron

Answer – A.

114. Ideal fill volume of Nebulizer is ---
   A. 1-3 ml
   B. 2-4ml
   C. 3-6ml
   D. 4-6ml
   E. 5-8ml

Answer – B.

115. Which inhalation devise works by Bernoulli Principle?
   A. Metered dose inhaler
   B. Spacer
   C. Dry powder inhaler
   D. MDI with spacer
   E. Nebulizer

Answer - E

116. Cold Freon effect is seen while using ---
   A. Metered dose inhaler
   B. Spacer
   C. Dry powder inhaler
   D. MDI with spacer
   E. Nebulizer

Answer - A

117. Which is NOT equipotent dose?
   A. 200mg Beclomethasone
   B. 200mcg budesonide
   C. 100mcg Ciclesonide
   D. 100mcg fluticasone
   E. 200mcg mometasone

Answer – C. 80 mcg
118. Which is **NOT** equipotent dose of 5 mg prednisolone?
   A. 20 mg hydrocortisone
   B. 4mg methyl prednisolone
   C. 0.75 dexamethasone,
   D. 0.75 betamethasone
   E. 12mg deflazacort

**Answer – E. 6mg**

119. Choice of antibiotic in AECOPD **DOES NOT** depend on ---
   A. Severity of exacerbation
   B. Previous antibiotic used
   C. Co morbid illnesses
   D. Total leukocyte count
   E. Stage of COPD

**Answer - D**

120. 35-year-old female has uncontrolled asthma. Which of the following is **LEAST LIKELY** to be the cause?
   A. Obesity
   B. GERD
   C. Hypothyroidism
   D. Hypertension
   E. Smoking

**Answer -D**

124. Which of the following is **NOT** an indication for intubation in a patient with AECOPD?
   A. Severe dyspnea on hospitalization
   B. Inability to tolerate NIV
   C. Severe hypoxia with Psychomotor agitation not controlled by medications
   D. Inability to clear airway secretions
   E. Severe ventricular arrhythmias

**Answer-A**

125. Which is a **WRONG** statement regarding Long term oxygen therapy (LOTS) in COPD?
   A. Does not lead to oxygen toxicity
   B. May decrease carbon dioxide retention
   C. Does not increase long term survival
   D. Majority on LOTS require lifelong oxygen
   E. May halt the progression of Cor Pulmonale

**Answer-C**
126. Which is a **WRONG** statement regarding COPD?
   A. Co morbidities may increase morbidity and mortality
   B. Can be diagnosed before onset of symptoms
   C. Characterized by progressive decline in lung function
   D. Smoking cessation halts the progression of COPD
   E. Inspiratory capacity is decreased in COPD

**Answer-D**

127. Diagnosis of COPD is confirmed by —
   A. Lung volume estimation
   B. Dlco
   C. Chest x-ray
   D. RV/TLC ratio
   E. Spirometry

**Answer-E**

128. Pathological changes in COPD **DOES NOT** occur in
   A. Lung Parenchyma
   B. Pulmonary Vasculature
   C. Major airways
   D. Interstitium
   E. Small airways

**Answer- D**

129. Mainstay of treatment in symptomatic COPD is —
   A. Inhaled bronchodilators
   B. Inhaled anticholinergic
   C. Inhaled corticosteroid
   D. Pulmonary rehabilitation
   E. Long term home oxygen

**Answer- D**

130. Which is the **MOST COMMON** co morbid illness in mild to moderate COPD
   A. Weight loss
   B. Cardiovascular
   C. Osteoporosis
   D. Skeletal muscle dysfunction
   E. Anxiety/depression

**Answer-B**
131. Which is **NOT** a common cause for LRTI in COPD
   A. H. Influenza
   B. M. Catarrhalis
   C. Streptococcus
   D. Pneumococcus
   E. Klebsiella
   **Answer-C**

133. Which is a **WRONG** statement regarding clinical markers of allergy?
   A. Specific IgE increases
   B. Total serum IgE increases
   C. Positive skin test
   D. IgG increases
   E. IgE level may not be proportional to severity of symptoms
   **Answer-D**

134. Which is a **WRONG** statement regarding N acetyl cysteine?
   A. Contra-indicated in acute exacerbation of Asthma
   B. Should be given with bronchodilator in obstructive airway diseases
   C. Can cause bronchospasm
   D. Acts by breaking disulfide bonds
   E. Acts as mucolytic
   **Answer-A**

135. Which is the screening test for PAH?
   A. Echo-cardiogram
   B. ECG
   C. Chest-X ray
   D. CT pulmonary angiogram
   E. HRCT thorax
   **Answer-A**

136. COPD is primarily diagnosed by ---
   A. Symptoms
   B. Physical signs
   C. Chest x-ray
   D. Spirometry
   E. Chest CT scan
   **Answer-D**
137. Bode Index uses all except
   A. MMRC dyspnea scale
   B. Body weight
   C. 6mt walk distance
   D. FEV₁, %

Answer-B

138. Which is a **WRONG** statement regarding aspirin induced asthma?
   A. Characterized by nasal congestion, profuse rhinorrhea, cetaceous flushing, conjunctivitis and wheezing.
   B. Diagnosed by placebo-controlled oral challenge with aspirin.
   C. Selective cox-2 inhibitors do not cause AIA.
   D. Systemic steroids is the treatment.
   E. Montelukast may be useful in treatment

Answer-D

139. Which of the following is **NOT** a radiological change in COPD?
   A. Presence of bulla
   B. Reduced retrosternal airspace
   C. Flattening of the diaphragm
   D. Dilated main pulmonary arteries
   E. Peripheral pruning of blood vessels

Answer B. Retrosternal airspace will increase in COPD due to hyperinflation

140. Which of the following is **NOT** an indication for ABG in a COPD patient?
   A. For assessing need for long term home oxygen
   B. Stage 4 COPD
   C. FEV₁ less than 70% predicted
   D. Clinical signs of respiratory failure
   E. Signs of Corpulmonale

Answer C. ABG is indicated when FEV₁ is less than 30%.

141. Which of the following is **LEAST LIKELY** to cause respiratory alkalosis in acute exacerbation of dyspnea in a COPD patient?
   A. Pneumothorax.
   B. Cardiogenic pulmonary edema.
   C. Pulmonary embolism.
   D. Pneumonia.
   E. Acute infective exacerbation of COPD

Answer E. Acute infective exacerbation of COPD usually leads to hypercapnic respiratory failure.
142. Which of the following is not a predisposing cause for pulmonary embolism in COPD?  
   A. Polycythemia  
   B. Overdose of bronchodilators  
   C. Dehydration during Acute exacerbation  
   D. Immobility  
   E. Associated bronchogenic carcinoma  
   **Answer B.** Bronchodilators do not predispose to embolism

144. Which of the following is **MOST COMMON** cause for AECOPD  
   A. Bacterial infections  
   B. Viral infections  
   C. Exposure to pollution  
   D. Pneumonia  
   E. Psychological stress  
   **Answer A.**
**Pleural disease**

1. In which of the following conditions Pleural manometry is **NOT** useful?
   A. During thoracocentesis
   B. To predict success of Pleurodesis
   C. To diagnose an unexpandable lung
   D. To decide regarding need for ICT drain in spontaneous pneumothorax
   E. To prevent re expansion pulmonary edema
   
   **Answer – D**

2. Which is a **WRONG** statement?
   A. Pleurodesis is used to prevent the re-accumulation of pleural fluid/air
   B. Most common indication for pleurodesis is malignant pleural effusion
   C. In benign recurrent symptomatic transudative pleural effusion pleurodesis is not indicated
   D. Pleurodesis is indicated in patients with symptomatic malignant pleural effusions
   E. Pleural fluid glucose less than 60 mg/dl is a relative contra indication for pleurodesis
   
   **Answer – C**

3. Which is a **WRONG** statement regarding fissural effusion?
   A. CCF is the most common cause
   B. Can occur in hyperproteinemia
   C. Most common site is horizontal fissure
   D. Treated with therapeutic aspiration
   E. Biconvex contour is diagnostic
   
   **Answer – D**

4. Which of the following is the **BEST** investigation to evaluate pleural thickening?
   A. Contrast enhanced CT scan
   B. Thoracic ultrasound
   C. Fluoroscopy
   D. Chest X-ray
   E. Medical Thoracoscopy
   
   **Answer – A**

5. Which of the following is **DEFINITE** sign of malignancy in CT scan image in pleural lesion?
   A. Circumferential pleural thickening
   B. Parietal pleural thickening more than 1 cm
   C. Nodularity
   D. Mediastinal pleural involvement
   E. Invasion of chest wall
   
   **Answer – E.**
6. In which condition thoracoscopy **MAY NOT BE** useful?
   A. Pleural thickening
   B. Undiagnosed pleural effusion
   C. Lung volume reduction surgery
   D. Empyema
   E. Recurrent Pneumothorax
   **Answer – A**

7. Which is the **MOST COMMON** cause for encysted pleural effusion?
   A. Tuberculosis
   B. Malignant pleural effusion
   C. Mesothelioma
   D. Acute pancreatitis
   E. Chylothorax
   **Answer – A**

8. Which of the following is **LEAST LIKELY** to lead to pleural calcification?
   A. Tubercular pleural effusion
   B. Empyema
   C. Hemothorax
   D. Asbestosis
   E. Malignant pleural effusion
   **Answer – E.**

1. Which of the following is the **BEST** investigation to determine the cause for raised dome?
   A. CT scan thorax
   B. Lateral decubitus x-ray
   C. Fluoroscopy
   D. Ultrasound thorax and abdomen
   E. MRI thorax
   **Answer – D.**

10. **MOST COMMON** site for encysted pleural effusion is ---
    A. Costoparietal
    B. Mediastinal
    C. Apical
    D. Inter lobar
    E. Sub pulmonic
    **Answer – A**
11. Which ICD is working best?
A. Continuous air bubbling
B. Air bubbling only during inspiration
C. Air bubbling only during expiration
D. Air bubbling on forced expiratory maneuver
E. No air leak
Answer – E

12. Middle of the night ICT slips out in a patient with BPF. What will you do next?
A. Tight pressure bandage
B. Immediate chest x ray
C. Re insert new ICT
D. Suture the wound and pressure dressing
E. Supplemental oxygen and observation
Answer – C

13. In an uncomplicated pneumothorax persistent air leak through the ICT is expected to STOP within---
A. 24 hours
B. 48 hours
C. 5 days
D. 7 days
E. 14 days
Answer – C

14. Which of the following is NOT a cause for persistent pneumothorax after ICT drain?
A. Broncho pleural fistula
B. Wrong placement/block in the tube
C. Bronchial injury
D. ICT size less than 28Fr
E. Pleural adhesions
Answer – D

15. Which of the following is LEAST LIKELY to cause Broncho pleural fistula?
A. Pneumonectomy
B. Endobronchial obstruction
C. Pulmonary tuberculosis
D. Obstructive airway disease
E. Trauma
Answer – B
16. Which of the following is NOT a sign of broncho pleural fistula?
A. Persistent air leak through ICT
B. Amphoric breath sounds on auscultation
C. No swing of fluid column in ICT
D. Persistent pneumothorax after ICT drain
E. Air fluid level in chest x ray

Answer – C

11. Which of the following is NOT useful in the treatment for Broncho pleural fistula?
A. ICT drain
B. Treatment of the underlying cause
C. If BPF size is less than 5mm bronchoscopic methods are likely to be successful
D. Surgical resection
E. Positive pressure ventilation

Answer – E

12. Which of the following ventilatory strategy should be AVOIDED in a patient with BPF?
A. Increase respiratory rate
B. Increase PEEP
C. Low tidal volume
D. Reduce inspiratory time
E. High frequency ventilation

Answer – B. PEEP should be kept minimum to reduce air leak.

13. Which is NOT a complication of Broncho pleural fistula?
A. Hemoptysis
B. Hypoxia
C. Pleural space infection
D. Aspiration pneumonia
E. Surgical emphysema

Answer – A

14. Which is a WRONG statement? EDIT
A. Pleural pressure increases during inspiration
B. In pleural effusion pleural pressure is positive
C. Thoracocentesis should be stopped when pleural pressure exceeds -20 cm H2O
D. Steep fall in pleural pressure during thoracocentesis indicates trapped lung
A. Pleural pressure more than \(-20\) cm H2O is associated with high chances of re-expansion pulmonary edema

**Answer – A. Pleural pressure decreases during inspiration.**

11. Which is a **WRONG** statement?
A. After lung resection continuous suction of \(-20\) cmH2O is recommended in all cases  
B. Continuous ICT suction can lead to hypoxemia  
C. Suction should be applied when lung fails to expand in spontaneous pneumothorax  
D. Suction is not contra indicated in Broncho pleural fistula  
E. Suction can result in damage to lung tissue

**Answer – A**

12. Which is a **WRONG** statement?
A. Talc is the most effective sclerosing agent available for pleurodesis  
B. Chemical Pleurodesis is the treatment of choice in recurrent primary spontaneous pneumothorax  
C. NSAIDS should be better avoided after talc pleurodesis  
D. Pleuritic chest pain and fever are the most common side effects of intrapleural instillation of sclerosing agent.  
E. Patient rotation is not necessary after intrapleural instillation of sclerosing agent.

**Answer – B**

13. Which of the following is NOT a contra indication for pleurodesis?
A. Empyema  
B. Un expanded lung  
C. Drain more than 150 ml/day  
D. Bronchopleural fistula  
E. Exudative pleural effusion

**Answer – E**

14. In which of the following condition pleurodesis is **LIKELY TO BE** successful?
A. Pleural fluid pH <7.20  
B. Bronchial obstruction  
C. Trapped lung  
D. Symptamatic relief after pleural aspiration  
E. Pleural pressure less than \(-20\) cm H2O

**Answer – D**

15. Types of encysted pleural effusion include all except ---
A. Costoparietal
B. Mediastinal  
C. Sub pulmonic  
D. Inter lobar  
E. Diaphragmatic  
**Answer - E**

16. How should pleural thickening be biopsied?  
   A. Should never be biopsied  
   B. Core biopsy by USG/CT guidance  
   C. Medical Thoracoscopy  
   D. Biopsy under general anesthesia  
   E. Abram's needle  
**Answer - A**

30. Which is a **WRONG** statement about urinothorax?  
   A. Most often bilateral  
   B. Pleural fluid to serum creatinine ratio more than 1  
   C. Usually resolves after the cause of urinary obstruction is removed  
   D. Transudate  
   E. More common on the same side of obstructive uropathy  
**Answer - A**

31. Which of the following usually **DOES NOT** predispose to encysted pleural effusion?  
   A. Tuberculosis  
   B. Empyema  
   C. Cirrhosis liver  
   D. Hemothorax  
   E. Congestive cardiac failure  
**Answer – C**

32. Most common cause for inter lobar effusion is ---  
   A. Tuberculosis  
   B. Empyema  
   C. Klebsiella pneumonia  
   D. Hemothorax  
   E. Congestive cardiac failure  
**Answer – E**
1. Empyema necessitates is usually due to
   A. Malignancy
   B. Pyogenic bacterial infections
   C. Actinomycosis
   D. Blastomycosis
   E. Tuberculosis

   **Answer – E**

34. Which is a **WRONG** statement about Para malignant effusion?
   A. Can occur in SVC obstruction
   B. May be due to lymphatic obstruction
   C. Can be due to pleural space infection
   D. Occurs only on the side of tumor
   E. Can be due to indirect effects of malignancy

   **Answer – D**

35. Which is **WRONG** statement regarding thoracic USG in pleural effusion?
   A. Decreases the chances of complications due to aspiration
   B. Can differentiate effusion from pleural thickening
   C. Can exactly measure the volume of pleural fluid
   D. Can differentiate pleural effusion from consolidation
   E. Can differentiate transudate from empyema

   **Answer – C**

36. Which is a **WRONG** statement about open pleural drainage?
   A. Done in patients with chronic empyema
   B. Done in patients with recurrent pleural effusion
   C. Done in patients unfit for definitive surgery
   D. Contra indicated in patients with no proper adherence of surrounding lung tissue to the chest wall
   E. Pneumothorax can be a complication of the procedure

   **Answer – B**

37. Which is a **WRONG** statement regarding Asbestos related pleural disease?
   A. Parenchymal involvement is more common than pleural involvement
   B. Pleural effusion usually occurs in the early stages of the disease
   C. Parietal pleural plaques are usually bilateral
   D. Pleural calcification occurs especially along the diaphragmatic pleura
   E. Diffuse pleural thickening may mimic Mesothelioma

   **Answer – A**
38. Which is a **WRONG** statement regarding encysted pleural effusion?
   A. Encystment is rare in malignant effusion
   B. Can mimic Mesothelioma
   C. Most common cause in India is CCF
   D. Multiple loculations more common in empyema
   E. Costoparietal encystment is most common

**Answer – C.** In India most common cause is tuberculosis.

39. Which of the following usually **DOES NOT** predispose to encysted pleural effusion?
   A. Tuberculosis
   B. Empyema
   C. Nephrotic syndrome
   D. Hemothorax
   E. Congestive cardiac failure

**Answer – C**

40. Which of the following is the **MOST COMMON** cause for inter lobar effusion?
   A. Tuberculosis
   B. Empyema
   C. Klebsiella pneumonia
   D. Hemothorax
   E. Congestive cardiac failure

**Answer – E**

41. Which of the following physical sign is **NOT SEEN** in pneumothorax?
   A. Decrease in chest movements
   B. Hyper resonant percussion note
   C. Decrease in intensity of breath sounds
   D. Increase in vocal resonance
   E. Amphoric breath sounds

**Answer: D**

In pneumothorax vocal resonance will be decreased as air is bad conductor of sound. Amphoric breath sound may be heard in pneumothorax when there is Bronchopleural fistula. Bronchopleural fistula is common in pneumothorax which occurs due to rupture a cavity or emphysematous bulla.

42. Which of the following is **NOT** a radiological sign in pneumothorax?
   A. Hyper translucent lung field at the periphery
   B. Absence of Bronchovascular markings in the area of hyper translucency
C. Shift of mediastinum to opposite side
D. Collapsed visceral pleural line
E. Air bronchogram

**Answer: E**

Air bronchogram occurs only in lung parenchymal disease, not in pleural disease. An area of hyper translucent lung field at the periphery which is devoid of Bronchovascular markings, bounded medially by collapsed visceral pleural margin with shift of mediastinum to opposite side is the characteristic radiological finding in pneumothorax.

43. Which of the following is **LEAST LIKELY** to cause severe dyspnea with a small pleural effusion?

A. Pancreatic pleural effusion
B. Pneumonia with effusion
C. Congestive cardiac failure with effusion
D. Tubercular pleural effusion
E. Malignant pleural effusion

**Answer – D.**

44. A 68-year-old male admitted with pleural effusion. He is a chronic alcoholic and has history of recurrent pain abdomen. He has no history of cough, hemoptysis. CT scan shows moderate pleural effusion with nodularity and thickening of pleura. Underlying lung appears normal. Which of the following investigation is **LEAST** useful in diagnosis?

A. Bronchoscopy
B. Pleural fluid cytology
C. Pleural fluid amylase estimation
D. Closed pleural biopsy
E. Thoracoscopy

**Answer – A.**

45. Which of the following is a physical finding in helps to differentiate pneumothorax from massive pleural effusion?

A. Tachypnea
B. Percussion note
C. Intensity of breath sounds
D. Chest movements
E. Tachycardia

**Answer: B.** Percussion note in pneumothorax is hyper resonant where as in pleural effusion it is stony dull. Reduced chest movements on the affected side with decreased intensity or absent breath sounds, Tachypnea and tachycardia are common to both the conditions.
46. Which of the following is NOT useful to differentiate between encysted pneumothorax and bulla?
   A. Proper history
   B. Serial chest x-rays and comparison of previous chest radiographs
   C. High resolution CT scan of thorax
   D. Decubitus lateral film
   E. Presence of Amphoric breath sounds

   Answer: D. In encysted pneumothorax where air is not free to move, decubitus lateral film will not lead to any radiographic change. Sudden onsets of symptoms indicate pneumothorax than bulla. Presence of localized hyper translucency in the serial x-rays which is long longstanding is indicative of bulla. In pneumothorax with Bronchopleural fistula Amphoric breath sounds may be heard.

47. Which is a WRONG statement about pleural effusion in lymphoma?
   A. Obstruction of the lymphatic drainage by enlarged mediastinal lymph nodes
   B. By direct tumor infiltration of the parietal or visceral pleura
   C. Non-Hodgkin's lymphoma is the most common cause of Chylothorax
   D. Can be due to superior vena caval obstruction
   E. Treated with pleurodesis

   Answer: E

48. Which is NOT a radiological sign of pleural effusion?
   1. Blunting of cardio phrenic angles
   2. Homogenous opacity
   3. Shift of Mediastinum to opposite side
   4. Air bronchogram
   5. Peripheral opacity

   Answer: D. Air bronchogram is seen in lung parenchymal lesion

49. Which of the following is the MOST COMMON cause for empyema?
   1. Bacterial pneumonia
   2. Following thoracic surgical procedures
   3. Trauma
   4. Septicemia
   5. Esophageal rupture

   Answer: A. Bacterial pneumonia accounts for more than 70% of empyema

50. Which of the following is LEAST LIKELY to cause minimal symptoms with apparently large effusion in Chest x-ray?
   A. Encysted effusion
   B. X-ray taken in a bedridden patient

   Underlying lung parenchymal or airway disease or other co morbid illness, symptoms are less likely.
C. Rapidly accumulating effusion
D. Otherwise healthy individual at rest
E. Longstanding effusion

**Answer:** C. When pleural effusion accumulates rapidly, symptoms are more likely. If effusion accumulates slowly and patient does not have any other u

51. Which of the following investigations is **NOT** helpful in establishing diagnosis of chylothorax?
   A. PF/serum cholesterol
   B. Pleural fluid triglyceride
   C. Pleural fluid Chylomicrons
   D. Pleural fluid centrifugation
   E. Thoracic duct imaging

**Answer-D**

52. Which of the following conditions is **LEAST LIKELY** to cause chylothorax?
   A. Chest trauma
   B. Following thoracic surgery
   C. Lymphoma
   D. Superior vena cava syndrome
   E. Thymoma

**Answer-E** Check.

53. Which statement among the following is **FALSE** about chylothorax?
   A. Most common cause is surgery/trauma followed by malignancy
   B. More common on right side
   C. Associated with severe pleuritic chest pain
   D. Usually not complicated by empyema
   E. Chylothorax in lymphoma spontaneously regresses following chemotherapy and radiotherapy.

54. Absence of lung sliding in thoracic ultra sound is a sign of –
   A. Trapped lung
   B. Pneumothorax
   C. Consolidation
   D. Pleural effusion
   E. Cardiogenic pulmonary edema

**Answer – B.**
55. Maximum penetration depth of an ultrasound wave depends on ---
   A. Frequency  
   B. Tissue color  
   C. Resolution  
   D. Pulse duration  
   E. Vascularity  
   **Answer – A.**

56. Hepatisation in thoracic ultrasound is seen in ---
   A. Atelectasis  
   B. Pleural effusion  
   C. Peripheral lung mass  
   D. Consolidation  
   E. Pneumothorax  
   **Answer – D.**

57. Which is a **WRONG** statement regarding ultrasound in pleural effusion?
   A. Useful to differentiate between lower lobe consolidation and effusion  
   B. Can measure approximate volume of pleural fluid  
   C. Can't differentiate cardiogenic pulmonary edema from ARDS  
   D. Decreases the complications associated with thoracocentesis  
   E. Can detect empyema  
   **Answer – C.**

58. Seashore sign in thoracic ultrasound is seen in ---
   A. Pneumothorax  
   B. Pleural effusion  
   C. Hydropneumothorax  
   D. Pleural thickening  
   E. Normal lung  
   **Answer - E**
**Pneumonia**

1. Which is the **MOST COMMON** pathogen responsible for post influenza bacterial pneumonia?
   A. Pseudomonas aeruginosa  
   B. Klebsiella pneumoniae  
   C. Moraxella  
   D. Staphylococcus aureus  
   E. E.Coli  

   **Answer – D**

2. Inhaled antibiotics are useful mainly against ---
   A. Gram negative organisms  
   B. Gram Positive organisms  
   C. Anaerobes  
   D. Atypical pathogens  
   E. Mixed infection  

   **Answer – A**

3. A 60-year-old man on ventilator for AECOPD develops VAP (Ventilator associated pneumonia) on 10th day after intubation. Which of the following is **LEAST LIKELY** to be the cause?
   A. Staphylococcus aureus  
   B. Klebsiella pneumoniae  
   C. Pseudomonas aeruginosa  
   D. Streptococcus pneumoniae  
   E. Acinetobacter  

   **Answer – D**

4. An otherwise healthy 28-year-old female school teacher presented with 2 days' history of fever, cough and breathlessness. Chest X-ray showed right upper lobe consolidation. What is the **MOST LIKELY** diagnosis?
   A. Tuberculosis  
   B. Klebsiella pneumonia  
   C. Staphylococcal pneumonia  
   D. Streptococcal pneumonia  
   E. Melioidosis  

   **Answer - D**

5. Which is a **WRONG** statement about Melioidosis?
   A. Melioidosis is more common in diabetics  
   B. Burkholderia pseudomallei grows easily on blood agar
C. Melioidosis is more common in people working in paddy fields and mines
D. Melioidosis requires treatment with more than one antibiotic for more than 2 weeks
E. Acute melioidosis usually presents as cavitary lesions in chest x ray

**Answer – E.** Usually Acute melioidosis usually presents as consolidation or bronchopneumonia in chest x ray. Cavity is commoner in subacute disease.

6. Which is a **WRONG** statement regarding nosocomial pneumonia?
   A. Organism may be multi drug resistant
   B. Morbidity and mortality is higher
   C. More in patients admitted to ICU
   D. Incidence does not increase with increase in the duration of hospital stay
   E. Patients with systemic diseases are more vulnerable

**Answer – D.**

7. Which of the following is **WRONG** about CURB-65?
   A. Blood pressure systolic <100 mmHg or diastolic ≤70 mmHg)
   B. Confusion (based upon a specific mental test or disorientation to person, place, or time)
   C. Urea >7 mmol/L (20 mg/dL)
   D. Respiratory rate ≥30 breaths/minute
   E. Age ≥65 years

**Answer – A.** Systolic <90 mmHg or diastolic ≤60 mmHg

8. Choice of antibiotic for pneumonia is **LEAST** dependent on which of the following?
   A. Severity of the disease
   B. Underlying/predisposing causes
   C. Age of the patient
   D. Co morbidities
   E. Previous antibiotic use

**Answer – C**

9. Which of the following is **NOT** an indication for bronchoscopy in a patient with pneumonia?
   A. To determine the severity of pneumonia
   B. Hemoptysis in a patient with pneumonia
   C. Unresolving pneumonia
   D. To isolate the organism
   E. Suspected malignancy

**Answer – A**

10. A 60 year old man on ventilator for AECOPD develops VAP (Ventilator associated pneumonia) on 10th day after intubation. Which of the following is **LIKELY** to be the cause?
A. Staphylococcus aureus  
B. Klebsiella pneumoniae  
C. Pseudomonas aeruginosa  
D. H. Influenza  
E. Acinetobacter  

**Answer – D.**

10. Which is not anaerobe?  
A. Bacteroides species  
B. Fusobacterium species  
C. Streptococcus pyogenes  
D. Peptostreptococcus  
E. Actinomyces  

**Answer – C.**

11. Which is not gram negative?  
A. Klebsiella pneumoniae  
B. Escherichia coli  
C. Pseudomonas aeruginosa  
D. Staphylococcus aureus  
E. Acinetobacter  

**Answer – D.**

12. Which antibiotic acts by inhibiting cell wall synthesis?  
A. Ceftriaxone  
B. Levofoxacin  
C. Erythromycin  
D. Tetracycline  
E. Amikacin  

**Answer – A.**

13. Quinolone which is **NOT** useful for respiratory tract infections?  
A. Ciprofloxacin  
B. Levofoxacin  
C. Gatifloxacin  
D. Ofloxacin  
E. Norfloxacin  

**Answer – E.**
14. Which antibiotic **DOES NOT** inhibit cell wall synthesis?
   A. Penicillins
   B. Cephalosporins
   C. Quinolones
   D. Carbapenems
   E. Vancomycin
   **Answer – C.**

15. Which is a **WRONG** statement about Klebsiella pneumonia?
   A. Can be community acquired/ nosocomial
   B. More common in elderly and alcoholics
   C. Nosocomial infection usually presents as lobar pneumonia
   D. Red currant jelly sputum may be seen.
   E. Usually sensitive to Amino glycosides
   **Answer – C.** When nosocomial presents as broncho pneumonia.

16. Which is a **WRONG** statement regarding lung abscess?
   A. Most frequently lung abscess arises as a complication of aspiration pneumonia
   B. More common in elderly
   C. Gram negative organisms are the most common cause
   D. Chronic alcoholism predisposes for lung abscess
   E. More common in dependent areas of lung
   **Answer – C.** Usually, lung abscesses contain multiple anaerobe species. Monomicrobial abscesses are only occasionally identified.

17. Which pathogen is **MOST COMMONLY** responsible for post influenza bacterial pneumonia?
   A. Pseudomonas
   B. E Coli
   C. Moraxella
   D. Staphylococcus aureus
   E. Klebsiella
   **Answer – D**

18. Which of the following is **NOT** a cause for poor response to treatment in upper lobe pneumonia?
   A. Improper antibiotic
   B. Immunosuppression
   C. Inadequate postural drainage
   D. Non infective causes mimicking pneumonia
   E. Endobronchial obstruction
Answer – C. Upper lobe is self-draining; hence postural drainage is not a factor to cause delayed resolution.

19. Which of the following is LEAST LIKELY complication of bacterial pneumonia?
   A. Pleural effusion
   B. Lung abscess
   C. ARDS
   D. Hypercapnic respiratory failure
   E. Sepsis
   Answer – D.

20. In which of the following condition dyspnea will be usually proportionate to physical findings?
   A. Atypical pneumonia
   B. Sepsis
   C. Lobar pneumonia
   D. Pulmonary embolism
   E. COPD
   Answer: C

   In lobar pneumonia signs of consolidation will be evident. In all other conditions physical findings may be minimal.

21. Which of the following condition chest X-ray will be always abnormal in a patient with dyspnea?
   A. Airway disease
   B. Atypical pneumonia
   C. Lobar pneumonia
   D. Early interstitial lung disease
   E. Pulmonary embolism
   Answer – C.

22. Which of the following is least likely to cause respiratory alkalosis?
   A. Pneumonia
   B. Acute exacerbation of Asthma
   C. High grade fever
   D. Neurogenic pulmonary edema
   E. Severe kyphoscoliosis
   Answer: E. Severe kyphoscoliosis will lead to respiratory acidosis
23. Pulse oximetry measures ---
   A. Hemoglobin level in blood
   B. Amount of oxygen contained in blood
   C. Pulse rate
   D. Percentage of Hemoglobin saturated with oxygen (SPO2)
   E. Spo2 and Heart rate

   **Answer – E**

24. Which of the following **DOES NOT** interfere with pulse oximetry readings?
   A. Dark skin
   B. Nail polish
   C. Hyper bilirubinemia
   D. Dyshemoglobinemias
   E. Hypotension

   **Answer C**

25. Saturation gap is not seen in which of the following poisoning/condition?
   A. Carbon monoxide
   B. Methemoglobinemia
   C. Cyan hemoglobin
   D. Trinitrotoluene
   E. Hydrogen sulfide

   **Answer C:** Saturation gap means disproportion in SPO₂ & PAO₂

26. Which of the following drug is least likely to cause Methemoglobinemia?
   A. Benzocaine
   B. Rifampicin
   C. Sulfonamides
   D. Compounds containing nitrates
   E. Metoclopramide

   **Answer - B**

27. Which is a **WRONG** statement regarding Methemoglobinemia?
   A. Central cyanosis
   B. Cyanosis is a late feature
   C. Cyanosis may not improve with supplemental oxygen
   D. Lead to shift of oxygen dissociation curve to left
   E. Po2 may be normal in ABG

   **Answer B**
28. Which is not useful in Meth hemoglobinemia?
   A. Exchange transfusion
   B. Hyper baric oxygen therapy
   C. Systemic steroids
   D. IV Methylene blue
   E. Hydration

   Answer: C

29. Which antibiotic is NOT useful in Melioidosis?
   A. Amoxycillin
   B. Meropenem
   C. Tetracyclin
   D. Ceftazidime
   E. Sulfamethoxazole and trimethoprim

   Answer – A

30. Which is a WRONG statement regarding viral pneumonia?
   A. Dyspnea disproportionate to physical findings
   B. Constitutional symptoms more predominant
   C. Usually occur during specific times of the year
   D. Influenza viruses are the most common cause in adults.
   E. Show early infiltrates in chest x ray

   Answer – E

31. Which organism is LEAST LIKELY to cause Cavitating pneumonia?
   A. Klebsiella
   B. Pseudomonas
   C. H influenza
   D. Staphylococcus aureus
   E. Streptococcus pneumoniae

   Answer – C
33. Which is **NOT COMMON** to hospital acquired and healthcare associated pneumonia?
   A. MDR pathogens are more likely
   B. Disease may be more severe
   C. Occurs in hospitalized patients
   D. More common in people with underlying lung/systemic disease
   E. Higher morbidity and mortality

   **Answer – C**

34. Which is a **RARE** symptom in pneumococcal pneumonia?
   A. Fever
   B. Cough
   C. Breathlessness
   D. Chest pain
   E. Hemoptysis

   **Answer – E**

35. Which is a **WRONG** statement regarding lung abscess?
   A. Most frequently lung abscess arises as a complication of aspiration pneumonia
   B. More common in elderly
   C. Gram positive organisms are the most common cause
   D. Chronic alcoholism predisposes for lung abscess
   E. More common in dependent areas of lung

   **Answer – C**

36. Pyopneumothorax is seen **MOST COMMONLY** in pneumonia caused by ---
   A. Staph.Aureus
   B. S.Pneumoniae
   C. Klebsiella
   D. Pseudomonas
   E. E.Coli

   **Answer- A**

37. Most common cause for community acquired pneumonia is ---
   A. Streptococcus
   B. Staphylococcus
   C. Pneumococcus
   D. Klebsiella
   E. Pseudomonas

   **Answer-C**
38. Which is the **MOST COMMON** site for lung abscess
   A. Right lower lobe posterior basal segment
   B. Right lower lobe anterior segment
   C. Right lower lobe medial basal segment
   D. Left lower lobe posterior basal segment
   E. Right upper lobe posterior segment

   **Answer - A**

39. Community acquired Klebsiella pneumonia commonly occurs in ---
   A. Lower lobe
   B. Middle lobe
   C. Upper lobes
   D. Bilateral
   E. Lingula

   **Answer-C**

40. Which is a **CORRECT** statement regarding atypical pneumonia
   A. Blood culture most often isolates organism
   B. Sputum analysis most often isolates the organism
   C. CXR shows consolidation
   D. Sputum most often scanty
   E. Present with high grade fever

   **Answer-D**

41. S1Q3T3 pattern in ECG may be seen in ---
   A. Pericardial effusion
   B. Anterior wall myocardial infarction
   C. Pulmonary embolism
   D. Viral Myocarditis
   E. Chronic Cor pulmonale

   **Answer-C**

42. PCP was first described in
   A. HIV infected persons
   B. Malnourished, Premature infants
   C. Organ transplantrecipients
   D. Patients on anti-cancer chemotherapy
   E. Elderly debilitated patients

   **Answer – B**
43. Most common cause for nosocomial pneumonia is ---
   A. Gram negative bacilli
   B. Gram positive bacilli
   C. Gram negative cocci
   D. Gram positive bacilli
   E. Anaerobes

Answer-A
Respiratory physiology

1. Abdomino-thoracic type of respiration is seen in ---
   A. Infants
   B. Adult males
   C. Females
   D. Pregnant women
   E. Age above 20 years
   Answer – B.

2. Paradoxical respiration is seen in ---
   A. Obesity
   B. Pleural effusion
   C. Diaphragm paralysis
   D. Collapse of lung
   E. Pneumothorax
   Answer – C

3. Voluntary control of respiration is in ---
   A. Medulla
   B. Pons
   C. Cerebellum
   D. Spinal cord
   E. Cerebral Cortex
   Answer – E

4. Pneumotaxic center is in ---
   A. Medulla
   B. Cerebral cortex
   C. Spinal cord
   D. Pons
   E. Cerebellum
   Answer – D

5. Hering-Breuer reflex protects lungs against ---
   A. Deflation
   B. Hyperinflation
   C. Pleural effusion
   D. Collapse
   E. Pulmonary edema
   Answer – B
6. Increased drive for respiration at the beginning of exercise is mainly due to ---
   A. J receptors  
   B. Chemoreceptors  
   C. Hering Breuer reflex  
   D. Proprioceptors  
   E. Stretch receptors  

Answer – D.

7. Rhythm of Cheyne-Stokes breathing depends on the blood level of –
   A. Oxygen  
   B. pH  
   C. Carbon dioxide  
   D. HCO3  
   E. Chloride  

Answer – C

8. Chloride shift out from RBC occurs in ---
   A. Lungs  
   B. Tissues  
   C. Brain  
   D. Kidney  
   E. Liver  

Answer – Lungs

9. Normal duration of Inspiration :Expiration is ---
   A. 2:3  
   B. 3:2  
   C. 4:5  
   D. 5:4  
   E. 2.2  

Answer – A.

10. Normal respiratory rate per minute in adults is ---
    A. 12-14  
    B. 14-16  
    C. 16-18
11. Which is the chief inspiratory muscle
   A. Internal intercostal
   B. External intercostal
   C. Pectoralis major
   D. Diaphragm
   E. Rectus abdominis
   
   **Answer – D**

12. Pump handle movement mainly occurs in ---
   A. 1-2 ribs
   B. 2-6 ribs
   C. 7-10 ribs
   D. 11 and 12 ribs
   E. 6 – 10 ribs
   
   **Answer – B**

13. Bucket handle movement occurs in ---
   A. 1-2 ribs
   B. 2-6 ribs
   C. 7-10 ribs
   D. 11 and 12 ribs
   E. 6 – 10 ribs
   
   **Answer – C**

14. Intrapleural pressure is sub-atmospheric due to ---
   A. Tendency of lung and chest wall to move in opposite direction
   B. Diaphragmatic movement
   C. Intra-abdominal pressure
D. Inspiratory effort
E. Surfactant

**Answer - A**

15. Compliance of lung does **NOT** decrease in ---
   A. ARDS
   B. Pulmonary edema
   C. Collapse
   D. Pneumonia
   E. Emphysema

**Answer – E**

16. Compliance of lung is mainly due to ---
   A. Surfactant
   B. Elasticity of lung
   C. Negative intrapleural pressure
   D. Positive intrathoracic pressure
   E. Elastic recoil of chest wall

**Answer - A**

17. Lung function values of an individual **DOES NOT** depend on ---
   A. Sex
   B. Age
   C. Height
   D. Weight
   E. Ethnicity

**Answer – D**

18. Which of the following data is **NOT** useful to diagnose airway obstruction?
   A. FEV1
   B. FEF 25 – 75
   C. FVC
   D. FEV1/FVC
   E. RV

**Answer – E**

19. With advancing age FEV1/FVC will ---
   A. Increase
   B. Decrease
C. No change
D. May increase or decrease
E. Remains constant

Answer – B

20. Which is a **WRONG** statement about obstruction?
   A) FEV1 decreases
   B) TLC decreases
   C) FVC decreases
   D) FEV1/FVC decreases
   E. RV increases

Answer – B. TLC may increase.

21. Diagnosis of airflow obstruction in Spirometry is identified by ---
   A. Decreased FEV1/FVC
   B. Decreased FEV1
   C. Decreased FVC
   D. Decreased FEF 25 – 75
   E. Increased RV

Answer – A

22. Severity of airway obstruction in Spirometry is classified based on --
   A. RV/TLC ratio
   B. FEV1 %
   C. FVC %
   D. FEF 25-75
   E. PEFR

Answer – B

23. Severity of restrictive lung disease in Spirometry is classified based on ---
   A. FEV1 %
   B. TLC
   C. FVC %
   D. FEF 25-75
   E. PEFR

Answer – C

24. Which is **NOT** measured by Spirometry?
   A. FVC
B. RV  
C. FEV1  
D. PEFR  
E. FEF 20 – 75  

Answer – B.

24. Which is a **WRONG** statement about obstruction?
   A. FEV1 < 80 %  
   B. FVC normal or low  
   C. FEV1/FVC > 0.7  
   D. Residual volume may be increased  
   E. TLC may be increased  

Answer – C

25. Which is a **WRONG** statement about restriction?
   A. FEV1 normal or mildly reduced  
   B. FVC < 80% predicted  
   C. FEV1/FVC normal  
   D. Residual volume increased  
   E. TLC reduced  

Answer - D

26. Scooped / inverted hockey stick appearance in flow volume loop is seen in ---
   A. Obstruction  
   B. Restriction  
   C. Variable upper air way obstruction  
   D. Fixed upper airway obstruction  
   E. Small airway disease  

Answer –A

27. Box shaped flow volume loop is seen in ---
   A. Obstruction  
   B. Restriction  
   C. Variable upper air way obstruction  
   D. Fixed upper airway obstruction  
   E. Small airway disease  

Answer - D
28. Which is a **WRONG** statement about bronchodilator reversibility testing?
   A. Short acting bronchodilators should be stopped 2 hr before the test
   B. Long acting bronchodilators should be stopped 12 hr before the test
   C. Sustained release Theophyllin should be stopped 24 hr before the test
   D. Some COPD patients may have bronchodilator reversibility
   E. Some asthmatics may not show bronchodilator reversibility

**Answer - A**

29. Positive bronchodilator reversibility test is ---
   A. FEV1 Increases > 12%
   B. FEV1 Increases >100 ml
   C. PEF Increases > 30 li/mt
   D. PEF Increases >50%
   E. FEV/FVC increases > 20%

**Answer – A**

30. Supplemental oxygen **MAY NOT** reduce hypoxia in ---
   A. Pneumonia
   B. Severe Anemia
   C. Pulmonary hemorrhage
   D. Pulmonary embolism
   E. Pulmonary edema

**Answer – B.**

31. Which one consistently increases with age?
   A. Forced Vital Capacity
   B. Total Lung Capacity
   C. FEV1
   D. Residual Volume
   E. Compliance

**Answer – D**

32. Which of the following **DOES NOT** interfere with pulse oxymetry reading?
   A. Hyperbilirubinaemia
   B. Hypotension
   C. Shivering
   D. Tattooing
   E. Dark skin

**Answer – A**

33. Oxygen transported in blood mainly by ---
   A. Dissolved in plasma
   B. Bound to Hemoglobin
   C. Bound to amino group of Hb
   D. Bound to Haem Part of Hb
   E. Bound to albumin

**Answer - D**

34. Double Bohr Effect occurs in ---
   A. Placenta
   B. Brain
   C. Lungs
35. Which artery is usually chosen for arterial puncture for ABG?
   A. Radial artery
   B. Dorsalis pedis
   C. Femoral Artery
   D. Ulnar Artery
   E. Subclavian Artery

Answer - A

36. What is the primary change in Respiratory Acidosis?
   A. PO2 is increased
   B. PCO2 is decreased
   C. PCO2 is increased
   D. HCO3 is decreased
   E. pH is reduced

Answer - C

37. What is the primary change in Metabolic Alkalosis?
   A. PCO2 is increased
   B. HCO3 is increased
   C. HCO3 is decreased
   D. PCO2 is decreased
   E. pH is reduced

Answer - B

38. All factors cause oxygen dissociation curve to shift to right except —
   A. Carbon monoxide increased
   B. Increased PCO2
   C. Increased H+
   D. Increased temperature
   E. Increase in 2-3 DPG

Answer - A

39. What is the primary change in Respiratory Alkalosis?
   A. PCO2 is increased
   B. HCO3 is increased
   C. HCO3 is decreased
   D. PCO2 is decreased
   E. pH is reduced

Answer – D

40. Primary change in metabolic acidosis is —
   A. PCO2 is increased
   B. HCO3 is increased
   C. HCO3 is decreased
   D. PCO2 is decreased
   E. pH is reduced

Answer – C
Obstructive sleep apnea

1. Which of the following is a **WRONG** statement about sleep?
   A. Delta waves occur predominantly in N3
   B. Duration of NREM-REM cycles progressively increases during each sleep cycle
   C. REM sleep predominates in the last one third part of the night.
   D. REM sleep follows NREM sleep
   E. Sleep walking typically occurs in the last one third of the night
   Answer – E.

2. Which of the following is a **WRONG** statement with regard to sleep in elderly?
   A. N2 sleep increases
   B. N3 sleep decreases
   C. Number of overnight arousals increases
   D. Latency to fall asleep decreases
   E. Overnight arousal duration increases
   Answer – D.

3. Which of the following is a **WRONG** statement?
   A. Melatonin secretion is maximum during day time
   B. Sleep spindles occur in stage N2
   C. Dreaming occurs during REM sleep
   D. Circadian body rhythm is modulated by hypothalamus
   E. Melatonin secreted by the pineal gland
   Answer – A.

4. Which of the following is a **WRONG** statement regarding the effects of sleep deprivation?
   A. Decreases release of growth hormone
   B. Increases metabolic activity of the brain
   C. Decreases immune system function
   D. Increases body weight
   E. Increases heart rate variability
   Answer – B.

5. Which of the following is a **WRONG** statement?
   A. Melatonin promotes sleep
   B. Persons with insomnia have higher rates of depression and anxiety
   C. Persons with insomnia have shorter daytime sleep latency
   D. Sleep is regulated by exposure to light and darkness.
   E. Persons with insomnia have hyper arousability
   Answer – C.

6. Which waves occur during daytime wakefulness?
   A. Beta waves
   B. Alpha waves
   C. Delta waves
   D. K complexes
   E. Theta waves
   Answer – A.

7. Which is **NOT** a feature of obstructive sleep apnea?
   A. Snoring during sleep
   B. Excessive daytime sleepiness
   Answer – B.
C. Unexplained weight loss
D. Choking sensation during sleep
E. Loss of libido

Answer – C

8. Which of the following is NOT an indication for BiPAP in treating OSA?
   A. Pressure required is very high (more than 15)
   B. Patient not able to tolerate CPAP
   C. Age more than 65 years
   D. Associated congestive heart failure.
   E. Associated neuromuscular disorders

Answer – C

9. Which is the MOST COMMON arrhythmia in patients with OSA?
   A. Atrial fibrillation
   B. Sinus bradycardia
   C. Ventricular premature complexes
   D. Ventricular tachycardia
   E. First degree atrio-ventricular block

Answer – A

10. Which is a WRONG statement regarding home sleep study?
    A. Eliminates waiting period
    B. May improve the accuracy of test results due to normal night's sleep.
    C. Better accepted by patients
    D. Ideal in patients with co-morbidities
    E. Less expensive

Answer – D

11. Which test is done for diagnosis of Narcolepsy?
    A. Overnight Oxymetry
    B. Multiple sleep latency test
    C. Polysomnography
    D. Split night sleep study
    E. Actigraphy

Answer – B

12. Which is a WRONG statement regarding jet lag?
    A. Going east is easier than going west
    B. Occurs due to dyssynchrony between the internal clock and the external light-dark cycle
    C. Excessive alcohol or caffeine intake during travel can worsen the symptoms
    D. Alternating insomnia and hypersomnia may be the symptom
    E. Strategic avoidance or exposure to light may be useful in treatment

Answer – A

13. Which of the following is NOT useful for assessment of a sleepy patient?
    A. Sleep diary for two to three weeks
    B. STOP BANG screening questionnaire
    C. Epworth sleepiness scale
    D. Insomnia severity index
    E. Sleep hygiene

Answer – E
14. Which is a **WRONG** statement regarding Epworth Sleepiness Scale (ESS)?
   A. Used to assess daytime sleepiness
   B. Score can range from 0 to 24.
   C. If one or more item-scores are missing, that ESS is invalid
   D. Can be used for granting or withholding a driver's license
   E. Score of 16-24 indicates severe excessive daytime sleepiness

**Answer – D**

15. Which of the following is **NOT** a part of STOP BANG questionnaire?
   A. Body mass index
   B. Age
   C. Neck circumference
   D. Gender
   E. Blood sugar level

**Answer – E**

16. Which is the **MOST COMMON** surgery done for treatment of OSA?
   A. Uvulopalatopharyngoplasty
   B. Maxillomandibular advancement
   C. Tracheostomy
   D. Septoplasty
   E. Hyoid advancement

**Answer – A**

17. Which of the following is **NOT** a risk factor for OSA?
   A. BMI >35 kg/m2
   B. Neck circumference more than 35 cm
   C. Male gender
   D. Age >50 years
   E. Family history of OSA

**Answer – B**

18. Which of the following is a **WRONG** statement regarding OSA?
   A. Incidence is highest in patients undergoing bariatric surgery
   B. Is a risk factor for post operative respiratory failure
   C. Increases cardiovascular complications
   D. All obese patients undergoing elective surgery need polysomnography
   E. STOP BANG questionnaire can be used for screening

**Answer – D**

19. Which of the following is **NOT** a feature of OSA?
   A. Unexplained pulmonary hypertension
   B. Uncontrolled diabetes mellitus
   C. Cognitive impairment
   D. Unexplained polycythemia
   E. Daytime hypercapnia

**Answer – E.**
20. Which is a **WRONG** statement?
   A. Sedative as premedication is better avoided in OSA patients
   B. Ambulatory surgical procedures should be avoided in all patients with OSA
   C. Opioids and muscle relaxants increase post op complications in patients with OSA
   D. CPAP therapy reduces post op complications in patients with OSA
   E. CPAP therapy up to 3 months prior to surgery reduces the surgical risk in patients with OSA

**Answer – B.**

21. Which is a **WRONG** statement regarding restless legs syndrome?
   A. Person has an urge to move the leg associated with uncomfortable in the legs.
   B. More common before age 45 years
   C. Worsens during periods of rest or inactivity.
   D. Symptoms partially or totally relieved by movement
   E. Symptoms more at night

**Answer – B.**

22. Which of the following is **NOT** associated with increased incidence of restless legs syndrome?
   A. Pregnancy
   B. Iron deficiency anemia
   C. Diabetes mellitus
   D. Peripheral neuropathy
   E. Benzodiazepines

**Answer - E**

23. Which is a **WRONG** statement?
   A. Sedatives as premedication is better avoided in OSA patients
   B. Ambulatory surgical procedures (day care) should be avoided in all patients with OSA
   C. Opioids and muscle relaxants increase post op complications in patients with OSA
   D. CPAP therapy after surgery reduces post op complications in patients with OSA
   E. CPAP therapy up to 3 months prior to surgery reduces the surgical risk in patients with OSA

**Answer - B.**

24. Which of the following is **NOT NREM** parasomnia?
   A. Periodic limb movement disorder
   B. Somnambulism
   C. Night terrors
   D. Confusional arousals
   E. Sleep-related eating disorder

**Answer - A**

25. Which of the following is known as “Dracula of hormones”?
   A. Testosterone
   B. Insulin.
   C. Melatonin
   D. Growth hormone
   E. Aldosterone

**Answer – C.**

26. Which co morbidity is **NOT** usually associated with Restless legs syndrome?
   A. Hypertension
   B. COPD
C. Parkinsonism  
D. Depression  
E. Chronic renal disease  

**Answer – B.**

27. Which of the following is **NOT** an indication for BiPAP in treating OSA?  
A. Pressure required is very high (more than 15)  
B. Patient not able to tolerate CPAP  
C. Age more than 65 years  
D. Associated congestive heart failure.  
E. Associated neuromuscular disorders  

**Answer – C.**

28. Which is the **MOST COMMON** arrhythmia in patients with OSA?  
A. Atrial fibrillation  
B. Sinus bradycardia  
C. Ventricular premature complexes  
D. Ventricular tachycardia  
E. First degree atrio-ventricular block  

**Answer – A.**

29. Which is a **WRONG** statement regarding COPD-OSA overlap syndrome?  
A. May lead to early development of Cor pulmonale  
B. OSA is more prevalent in patients with emphysema phenotype  
C. Mortality rates is higher compared to those with either COPD or OSA alone  
D. Higher incidence of mortality at night  
E. Increases cardiac co morbidity  

**Answer – B**

30. Which is a **WRONG** statement regarding sleep apnea in children?  
A. Central sleep apnea is more common than OSA  
B. Enlarged adenoids and tonsils can be the cause  
C. May present with behavioural problems  
D. May have poor weight gain  
E. May be hyperactive  

**Answer - A**

31. Which is a **WRONG** statement regarding stroke in patients with OSA?  
A. OSA is a risk factor for stroke  
B. OSA may develop following stroke  
C. Cardiovascular effects of OSA increase the risk of stroke  
D. Polycythemia due to OSA can be a risk factor for stroke  
E. Stroke is more common in patients with mild OSA  

**Answer – E.**

32. Which of the following is a **WRONG** statement regarding OSA in patients with psychiatric disorders?  
A. OSA may present with behavioral abnormalities  
B. Symptoms may overlap  
C. Psychosis is the most common disorder in patients with OSA
D. Medications used to treat psychiatric disorders may worsen OSA
E. Treatment of OSA in psychiatric patients may improve the psychiatric symptoms

Answer – C.

33. Which of the following is NOT associated with OSA?
   A. Hyperthyroidism
   B. Type 2 diabetes
   C. Metabolic syndrome
   D. Non-alcoholic fatty liver disease
   E. Acromegaly

Answer - A

34. Which of the following is NOT a symptom in Narcolepsy?
   A. Excessive daytime sleepiness
   B. Cataplexy
   C. Hallucinations
   E. Sleep paralysis
   F. Snoring

Answer - E

35. Which test is done for diagnosis of Narcolepsy?
   A. Overnight Oxymetry
   B. Multiple sleep latency test
   C. Polysomnography
   D. Split night sleep study
   E. Actigraphy

Answer – B.

36. Which is a WRONG statement regarding jet lag?
   A. Going east is easier than going west
   B. Occurs due to dyssynchrony between the internal clock and the external light-dark cycle
   C. Excessive alcohol or caffeine intake during travel can worsen the symptoms
   D. Alternating insomnia and hypersomnia may be the symptom
   E. Strategic avoidance or exposure to light may be useful in treatment

Answer - A

37. Which is a WRONG statement regarding Delayed Sleep Phase Syndrome?
   A. Sleep is delayed by 2 or more hours beyond the socially acceptable or conventional bedtime
   B. Inability to fall asleep at the desired time
   C. Inability to wake up at the desired time
   D. Excessive daytime sleepiness
   E. Often associated with other sleep disorders

Answer – E.

38. Which is a WRONG statement?
   A. Advanced Sleep-Wake Phase Disorder(ASWPD) is more common in elderly
   B. Delayed Sleep Wake Phase Disorder(DSWPD) more common in younger age group
   C. Actigraphy can be used to treat both ASWPD and DSWPD
   D. Evening bright light therapy can be used to treat Advanced Sleep-Wake Phase Disorder
   E. Morning light therapy can be used to treat Delayed Sleep Wake Phase Disorder
Answer - C
39. Which is a WRONG statement regarding OSA
   A. More common in men
   B. More common in obese
   C. Can lead to uncontrolled DM and HT
   D. All snorers have OSA
   E. Associated with metabolic syndrome

   Answer-D

40. Which cell type bronchogenic carcinoma is more common in non smokers?
   A. Adenocarcinoma
   B. Squamous cell carcinoma
   C. Small cell carcinoma
   D. Large cell carcinoma
   E. Broncho alveolar cell carcinoma

   Answer-A
Tuberculosis

1. Which of the following is MOST POTENT Anti TB drug?
   A. Ethionamide
   B. Cycloserine
   C. PAS
   D. Moxifloxacin
   E. Co-amoxyclav

Answer – D

2. Which of the following drug is MOST POTENT in preventing relapse in TB?
   A. INH
   B. Rifampicin
   C. Pyrazinamide
   D. Ethambutol
   E. Streptomycin

Answer – B.

3. Main outcome indicator of effective TB control program is ---
   A. Defaulter rate
   B. Death rate
   C. Failure rate
   D. Number of newly detected cases
   E. Cure rate

Answer – E

4. Best way to control TB is ---
   A. BCG vaccination
   B. Screening and early detection of cases
   C. Early detection and treatment of cases
   D. Isolation of cases
   E. Chemoprophylaxis

Answer – C

5. Which is the essential drug for short course chemotherapy in TB?
   A. INH
   B. Rifampicin
   C. Ethambutol
   D. Streptomycin
   E. Levofoxacin

Answer – B.

6. Primary drug resistance is MOST COMMON to which Anti-TB drug?
   A. Rifampicin
   B. Ethambutol
   C. INH
   D. Pyrazinamide
   E. Streptomycin

Answer – C.

7. Which is the MOST RELIABLE indicator of drug resistance in TB while patient is on treatment?
A. Clinical deterioration  
B. Appearance of new lesions in x ray  
C. Persistent sputum smear positivity  
D. Persistent fever beyond one month  
E. Recurrent hemoptysis  

**Answer C.**

8. Which Anti TB drug was invented first?  
A. INH  
B. Ethambutol  
C. Streptomycin  
D. Rifampicin  
E. Pyrazinamide  

**Answer – C**

9. Which is **NOT** a risk factor for ATT induced hepatotoxicity?  
A. Female  
B. Age less than 20 years  
C. Extensive Lung disease  
D. Inappropriate use of drugs  
E. Hypoxia  

**Answer – B.**

10. Which is a **WRONG** statement regarding Gene X-pert?  
A. Nucleic acid amplification assay for detection of TB  
B. Can be used in children  
C. Can be used in smear negative cases  
D. Useful for rapid diagnosis of TB  
E. Useful for follow up of TB cases  

**Answer – E**

11. Which is a **WRONG** statement regarding endobronchial TB?  
A. Cough is a predominant symptom  
B. May mimic malignancy on bronchoscopic examination  
C. CT scan may be helpful in diagnosis  
D. Involves major airways  
E. Stridor is a common presenting symptom  

F. **Answer - E**

12. What is the **DIAGNOSTIC** investigation in suspected endobronchial TB?  
A. CT virtual Bronchoscopy  
B. Sputum for Gene X pert  
C. Bronchoscopy and analysis of bronchial washings  
D. Lung biopsy  
E. Sputum culture for AFB  

**Answer – C**

13. A 48-year-old male was diagnosed with smear positive pulmonary tuberculosis and has been treated for 2 months ATT with good response. But the patient develops numbness and paresthesia in the extremities. What will you do next?  
A. Add pyridoxine  
B. Replace isoniazid with PAS
C. Stop isoniazid
D. Replace rifampin with ethambutol
E. Replace isoniazid with levofloxacin

Answer – A.

Numbness and paresthesia in the extremities in a patient on ATT is due to INH induced peripheral neuritis which should be treated with pyridoxine 100mg daily at night. Routine supplementation of pyridoxine with ATT should be avoided as it decreases the efficacy of INH. Only patients with preexisting peripheral neuritis and those who are at higher risk of developing peripheral neuritis should be given a prophylactic dose of pyridoxine 40mg at night. Diabetes, malnutrition, hypoxia, extensive lung disease, alcoholism are some of the conditions which predispose for development of INH induced peripheral neuritis.

14. Which is a WRONG statement regarding Edinburgh method of treatment for TB?
A. Was pioneered by John Crofton
B. Was the first successful combination chemotherapy for TB
C. All three drugs were used till the end of treatment
D. INH, Streptomycin and PAS were used
E. Prevented development of drug resistance

Answer – C. In Edinburgh method of treatment for TB streptomycin was given in the initial intensive phase and then only INH and PAS were continued for in continuation phase for 1 year.

15. Which anti TB drug which may precipitate an addisonian crisis?
A. INH
B. Ethambutol
C. Streptomycin
D. PAS
E. Rifampicin

Answer – E.

16. Which is a WRONG statement?
A. TB can lead to poor control of diabetes
B. Pancreatic TB can lead to development of diabetes
C. Lower lung field TB more common in patients with diabetes
D. Rifampicin can lead to hypoglycemia
E. Diabetes greatly alters clinical presentation of TB.

Answer – D. Rifampicin can lead to hyperglycemia.

17. Which of the following is NOT a mechanism for adrenal insufficiency in Pulmonary tuberculosis?
A. Direct involvement of adrenal gland by TB
B. Chronic infection
C. Pro inflammatory cytokines
D. TNF alpha
E. Increased hepatic metabolism due to ethambutol

Answer – E. Ethambutol is not a liver enzyme inducer.

18. Which is a WRONG statement regarding Miliary TB?
A. Due to hematogenous spread
B. Diffuse randomly distributed
C. HRCT is more sensitive
D. Calcification is common after treatment
E. Chest X-ray may be normal

Answer – D.
19. Which is a **WRONG** statement?
   A. Majority of cavitory Pulmonary TB are smear positive
   B. Cavitation is more common in Squamous cell carcinoma
   C. Cavitating bronchogenic carcinoma has poorer prognosis
   D. Aspergilloma always requires treatment by surgery
   E. Ischemia is the main cause for Cavitation in bronchogenic carcinoma

**Answer – D**

20. Which is the **MOST COMMON** cavity leading to Aspergilloma?
   A. Lung abscess cavity
   B. Post TB cavity
   C. Active TB cavity
   D. Septic emboli cavity
   E. Congenital cyst

**Answer – B**.

21. Which is **MOST COMMON** site for pulmonary TB?
   A. Right upper lobe posterior segment
   B. Right upper lobe anterior segment
   C. Left upper lobe
   D. Right lower lobe
   E. Left lower lobe

**Answer – A**.

22. Which is **NOT** a radiological feature in pulmonary TB?
   A. Pleural effusion with parenchymal lesion
   B. Parenchymal lesion with mediastinal lymphadenopathy
   C. Cavity surrounded by infiltrates
   D. Collapse of upper lobe
   E. Infiltrative lesion in upper lobe

**Answer – D**.

23. Which is **NOT** a feature of tubercular cavity?
   A. Predominantly seen in upper lobe
   B. May be single or multiple
   C. Thin walled
   D. Prominent air fluid level
   E. May be bilateral

**Answer – D**.

24. Which is a **WRONG** statement regarding tubercular cold abscess?
   A. Most common site is neck
   B. Usually painless
   C. Usually cystic in consistency
   D. Constitutional symptoms are rare
   E. Acute inflammatory signs are usually absent

**Answer – D**

25. Which is a **WRONG** statement regarding cavity in tuberculosis?
   A. Cavity is less common in patients with acquired immunodeficiency syndrome
   B. Cavitation is highly prevalent among diabetic patients with tuberculosis

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C. The number and maximum size of cavities can correlate with the numbers of acid-fast bacilli (AFB) in sputum
D. Tubercular cavities are always thin walled
E. Cavities can vary widely in size

Answer - D

26. Serial sputum examination in pulmonary TB is NOT USEFUL to decide/detect which of the following?
   A. Drug resistance
   B. Response to treatment
   C. Extent of lung lesion
   D. Noncompliance with treatment
   E. Outcome of treatment

Answer – C

27. Which is a WRONG statement regarding endobronchial TB?
   A. Cough is a predominant symptom
   B. May mimic malignancy on bronchoscopic examination
   C. CT scan may be helpful in diagnosis
   D. Involves small airways
   E. Stridor is not a common presenting symptom

Answer – D. Involves major airways

28. Which of the following is a WRONG statement about endobronchial TB?
   A. Chest x ray may be normal
   B. Cough is a common symptom
   C. Can present with prolonged fever with wheezing
   D. HRCT scan thorax will demonstrate endobronchial lesions
   E. Sputum AFB smear may be positive

Answer – D

29. World TB day is ---
   A. Birthday of Robert Koch
   B. Date when TB bacilli was discovery was announced
   C. Date when DOTS was started first
   D. Date when BCG was discovered
   E. March 22nd

Answer – B.

30. Which of the following drug is MOST POTENT in preventing relapse in tuberculosis?
   A. INH
   B. Rifampicin
   C. Pyrazinamide
   D. Ethambutol
   E. Streptomycin

Answer - B

31. Which drug acts on dormant bacilli?
   a) INH
   b) Pyrazinamide
   c) Ethambutol
d) Streptomycin
e) Rifampicin

**Answer - E**

32. Most common site for TB lymphadenitis is ---
   A. Retro peritoneal
   B. Cervical
   C. Axillary
   D. Inguinal
   E. Submandibular

   **Answer - B**

33. Which is **NOT** bactericidal?
   A. INH
   B. Rifampicin
   C. Streptomycin
   D. Ethambutol
   E. Streptomycin

   **Answer - D**

34. Venous sample while doing ABG is most common when the puncture site is --- artery
   A. Brachial
   B. Radial
   C. Dorsalis Pedis
   D. Popliteal
   E. Femoral

   **Answer – E.**

35. Which anti TB drug is contraindicated in Pregnancy?
   A. Rifampicin
   B. Ethambutol
   C. Streptomycin
   D. Pyrazinamide
   E. INH

   **Answer-C**

36. Which is a **WRONG** statement regarding tuberculosis?
   A. There is no genetic predisposition to develop tuberculosis
   B. Smoking increases the risk for developing pulmonary TB.
   C. Females of child bearing age on ATT should be advised contraception till completion of treatment.
   D. Drug resistant TB is more common in diabetics
   E. Rifampicin is the most potent primary Anti TB drug

   **Answer - A**

37. Which is a **CORRECT** statement regarding Ethambutol?
   A. Can cause peripheral neuritis
   B. Better avoided in children less than 5 years of age
   C. Can cause hepatotoxicity
   D. Not used in continuation phase
   E. Bactericidal

   **Answer-B.**
37. Which Anti TB drug which was invented last?
   A. INH
   B. Ethambutol
   C. Streptomycin
   D. Rifampicin
   E. Pyrazinamide
Answer-D

38. Which Anti-TB drug has drug interaction with Anti-retroviral drugs?
   A. INH
   B. Ethambutol
   C. Streptomycin
   D. Pyrazinamide
   E. Rifampicin
Answer-E

39. A patient on ATT complains of joint pain and swelling. Which drug the is to MOST LIKELY cause this?
   A. INH
   B. Ethambutol
   C. Streptomycin
   D. Pyrazinamide
   E. Rifampicin
Answer-D

40. A patient on ATT develops hearing impairment. Which drug is the most likely cause?
   A. INH
   B. Ethambutol
   C. Streptomycin
   D. Pyrazinamide
   E. Rifampicin
Answer-C

41. A patient on ATT develops jaundice. Which drug least likely to be the cause?
   A. INH
   B. Ethambutol
   C. Cycloserine
   D. Pyrazinamide
   E. Rifampicin
Answer-B

42. ATT which should be given on empty stomach?
   A. INH
   B. Ethambutol
   C. Cycloserine
   D. Pyrazinamide
   E. Rifampicin
Answer-E

43. Which drug leads to discoloration of urine?
   A. Rifampicin
B. INH  
C. Ethambutol  
D. Cycloserine  
E. Pyrazinamide

**Answer - A**

44. Which is the least potent Anti TB drug?  
   A. Streptomycin  
   B. Rifampicin  
   C. INH  
   D. Ethambutol  
   E. Pyrazinamide

**Answer - D**

45. Why treatment of TB is always with multidrug regimen?  
   A. To decrease duration of treatment  
   B. To enhance patient compliance  
   C. To prevent emergence of drug resistance  
   D. To decrease drug toxicity  
   E. To improve the treatment outcome

**Answer - C**

46. What is the best way to control TB?  
   A. Early detection and treatment  
   B. BCG vaccination  
   C. Isolation of cases  
   D. Chemoprophylaxis  
   E. Treatment of latent TB

**Answer - A.**

47. Which is the most common organ involved in extra pulmonary TB  
   A. Meninges  
   B. Lymph node  
   C. Bone  
   D. GIT  
   E. Skin

**Answer - B**

48. Number of deaths in patients under treatment of Tuberculosis is---  
   A. Impact indicator  
   B. Outcome indicator  
   C. Process indicator

**Answer - A**

49. Which is the most reliable indicator of Drug resistance while patient is on treatment?  
   A. Clinical deterioration  
   B. Appearance of new lesions in CXR  
   C. Persistent sputum smear positivity  
   D. Persistent fever beyond one month  
   E. Progressive weight loss

**Answer - C**
50. XDR TB is---
   A. MDR TB with resistance to any two second line ATT
   B. MDR with resistance to Quinolones and one second line Aminoglycoside
   C. MDR TB with resistance any other two ATT
   D. MDR TB with resistance to streptomycin and Levofloxacin
   E. MDR TB with resistance to Cycloserine and Levofloxacin

Answer-A

51. Which is NOT a disadvantage of fluorescence microscopy
   A. Cost
   B. Requires technical skill to handle
   C. Requires power supply
   D. Sensitivity compared to conventional method

Answer - D

52. Chest X-Ray is helpful in PTB in all of the following conditions except ---
   A. For presumptive diagnosis of smear negative PTB
   B. To diagnose coexistent lung disease
   C. To diagnose pleural complications
   D. To know the extent of lung lesion
   E. Decide treatment category smear negative cases

Answer-D

53. MDR TB is ---
   A. Resistance to all first line ATT
   B. Resistance to streptomycin and Rifampicin
   C. Resistance to INH and Rifampicin
   D. Resistance to Pyrazinamide and Rifampicin
   E. Resistance to Ethambutol and Rifampicin

Answer-C

54. Which drug CAN'T cross biological membranes?
   A. INH
   B. Ethambutol
   C. Streptomycin
   D. Pyrazinamide
   E. Rifampicin

Answer-C

55. What is primary drug resistance in Tuberculosis?
   A. Resistance to INH and Pyrazinamide
   B. Drug resistance with no past history of ATT
   C. Resistance to primary Anti-TB drugs
   D. Resistance detected for the first time
   E. Resistance to INH and Rifampicin

Answer-B.
56. Which is the MOST POTENT Quinolone as second line ATT?
   A. Ciprofloxacin
   B. Norfloxacin
   C. Levofloxacin
   D. Ofloxacin
   E. Moxifloxacin

   **Answer-C**

57. Which is NOT a risk factor for ATT induced hepatotoxicity?
   A. Female
   B. Age less than 20 years
   C. Extensive Lung disease
   D. Inappropriate use of drugs
   E. Multidrug regimen

   **Answer - B**

58. Which of the following is now NOT being used in treatment of MDR TB?
   A. Ethionamide
   B. Cycloserine
   C. Levofloxacin
   D. Thiazetazone
   E. Bedaquiline

   **Answer-D**

59. Which of the following drug is MOST POTENT in preventing relapse in TB?
   A. INH
   B. Pyrazinamide
   C. Ethambutol
   D. Bedaquiline
   E. Rifampicin

   **Answer-E**

60. Which is the MOST POTENT Anti-TB drug with early bactericidal activity?
   A. INH
   B. Pyrazinamide
   C. Ethambutol
   D. Rifampicin
   E. Levofloxacin

   **Answer-D**

61. Which is the MOST POTENT Anti-TB drug with sterilizing activity?
   A. INH
   B. Rifampicin
   C. Pyrazinamide
   D. Ethambutol
   E. Levofloxacin

   **Answer-B**

62. Which is the MOST POTENT Anti-TB drug in preventing development of drug resistance?
   A. INH
   B. Rifampicin
   C. Pyrazinamide
63. Which drugs acts on dormant bacilli?
   A. INH
   B. Rifampicin
   C. Streptomycin
   D. Ethambutol
   E. Levofloxacin
   **Answer-B**

64. Tuberculin skin test will be negative when CD4 T lymphocyte count is less than---
   A. 200/ul
   B. 250/ul
   C. 300/ul
   D. 400/ul
   E. 500/ul
   **Answer-A**

65. Which drug is effective in acidic pH?
   A. Rifampicin
   B. Ethambutol
   C. INH
   D. Pyrazinamide
   E. Streptomycin
   **Answer-D**

66. Which Anti-TB drug that can cause psychiatric manifestations?
   A. Rifampicin
   B. Ethambutol
   C. INH
   D. Pyrazinamide
   E. Cycloserine
   **Answer-E**

68. Principal adverse effect of Ethionamide is ---
   A. Upper GIT Symptoms
   B. Hypothyroidism
   C. Seizures
   D. Drug induced Hepatitis
   E. Pruritus
   **Answer-A**

67. What is the best way to monitor the response to treatment in smear + TB?
   A. Bacteriological assessment
   B. Weight gain
   C. Clinical assessment
   D. Radiological assessment
   E. Assessing treatment compliance
   **Answer-A**
69. Which of the following is the **MOST COMMON** cause of Granulomatous lymphadenitis?
- A. Sarcoidosis
- B. Tuberculosis
- C. Lymphomas
- D. Syphilis
- E. Fungal infections

*Answer - B.*

69 A. Generalized lymphadenopathy
- B. Supraclavicular lymphadenopathy
- C. Hard consistency
- D. Size > 2.25 cms
- E. Pain/tenderness

*Answer – E.*

70. Which is a **FALSE** statement?
- A. Multiple, firm, matted, lymph nodes are seen in TB
- B. Rubbery, discrete, lymph nodes are seen in lymphomas
- C. Both may have nonspecific systemic symptoms
- D. FNAC will show granulomatous inflammation picture only in TB not in Lymphomas
- E. Sinus tract formation seen in TB lymphadenitis

*Answer - D*
Dr. Vishnu Sharma obtained his M.D. degree in Respiratory medicine in the year 1998 from the prestigious central institute JIPMER, Pondicherry. He is a postgraduate teacher with more than two decades’ experience. He has 75 publications in various National and International journals. He is editorial board member and reviewer for many Respiratory medicine journals. He has delivered more than 300 lectures in various scientific meetings. He is popular as Quiz master in Respiratory medicine in India. He has conducted over 50 quiz programs for Postgraduate students since last one decade.
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