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OSCE in Critical Care Medicine-I



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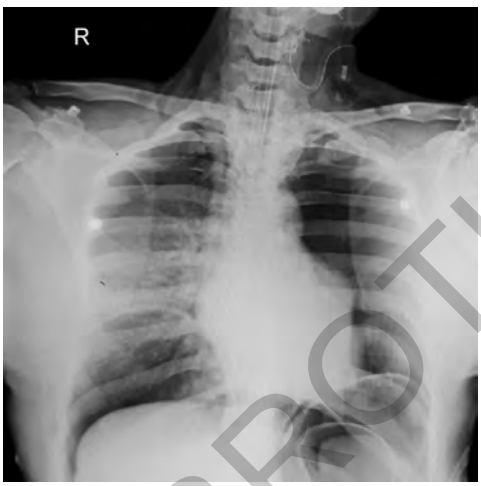
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QUESTIONS

RESPIRATORY MEDICINE

1. You are called in to see a postoperative patient who is becoming difficult to ventilate and desaturating despite providing 100% FiO_2.
   - What is the diagnosis?
   - How will you manage the case?



2. Comment on the chest X-ray of a patient who is being electively ventilated for breathlessness.

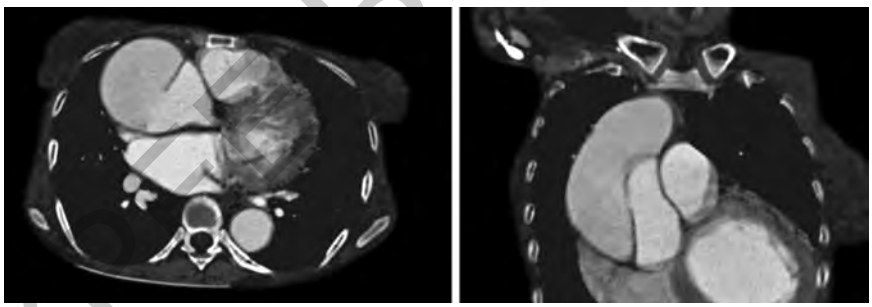


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3. This patient was shifted to ICU from OR as a postoperative case for elective ventilation overnight. The patient's saturations are persistently low at 88% despite FiO_2 of 80%.
   - What is the classic radiologic sign in the picture?

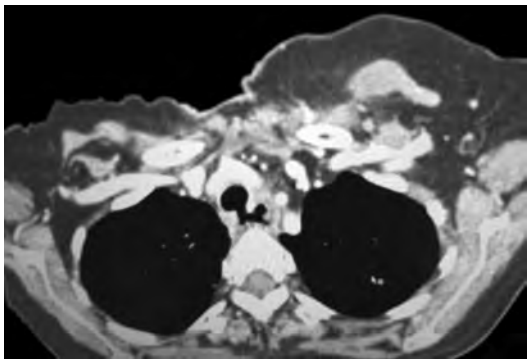


4. A 72-year-old man with past history of hypertension and diabetes mellitus presented to the ER with the sudden onset of intense chest pain radiating to right arm and back for the past half an hour. A contrast CT was taken as chest X-ray showed mediastinal widening.
   - What is the diagnosis and management?

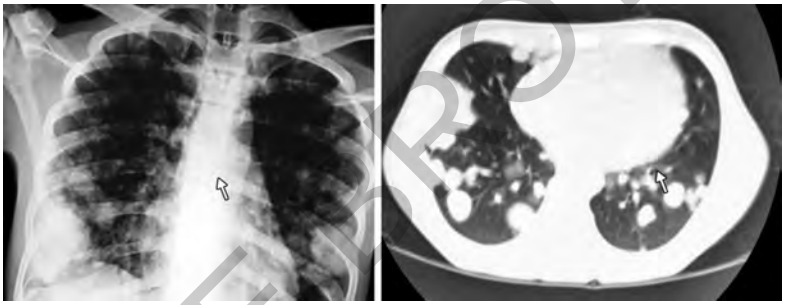


5. A 46-year-old male underwent an upper GI endoscopy for evaluation of esophageal malignancy and dysphagia. Post procedure, he complains of severe chest pain and is admitted to ICU. ECG is normal; HR 115 beats/min; sinus; BP 110/86 mm Hg; RR 26 breaths/min; and saturation 98% on room air. A CT thorax was taken which is shown in image below.
   What is the diagnosis and management?

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6. A 26-year-old male, a known case of metastatic choriocarcinoma testes, presents with breathing difficulty of 1-week duration. In view of respiratory distress, he is started on noninvasive ventilation (NIV) with a PEEP of 7 cm H_2O, and FiO_2 70%. An ABG showed a PF ratio 180.
   As per the BERLIN definition of ARDS, which category of ARDS does he fall into?



7. An 85-year-old female, known case of HT, DM, and CAD, presented to ER with acute onset fever, chest pain, and breathlessness. What is the possible etiological diagnosis?
   - How will you score the severity of the condition?
   - What is the evidence for HFNC in this condition?



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8. A 74-year-old male, a known case of diabetes mellitus, hypertension, and coronary artery disease, is now admitted with breathing difficulty.
   - What is the diagnosis?
   - What are the mechanisms by which noninvasive ventilation will help in managing the patient?



9. This patient is being referred to you with worsening hypoxia, despite being ventilated with 100% FiO_2 and PEEP of 16 cm H_2O. He was apparently normal till last week and the symptoms of cough and breathing difficulty started after a viral prodrome and upper respiratory tract infection. Currently he is being ventilated with 6 mL/kg tidal volume, 16 cm H_2O PEEP and 100% FiO_2 with a respiratory rate of 28. His PaO_2 is 86 mm Hg and PCO_2 is 96 mm Hg with a pH of 7.13. How will you classify the condition?

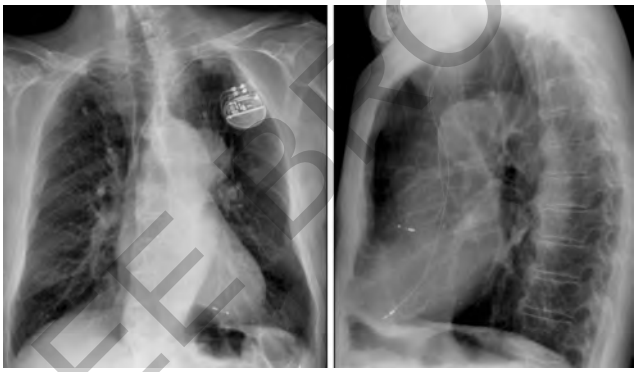


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10. Comment on the chest X-ray of a patient, a known case of chronic kidney disease, intubated after being revived from a hyperkalemic cardiac arrest. Post intubation there is a constant alarms of high peak pressures, and the patient is having worsening hypoxia.



11. Comment on the device seen on chest X-ray.
What are the class 1 indications for the same?

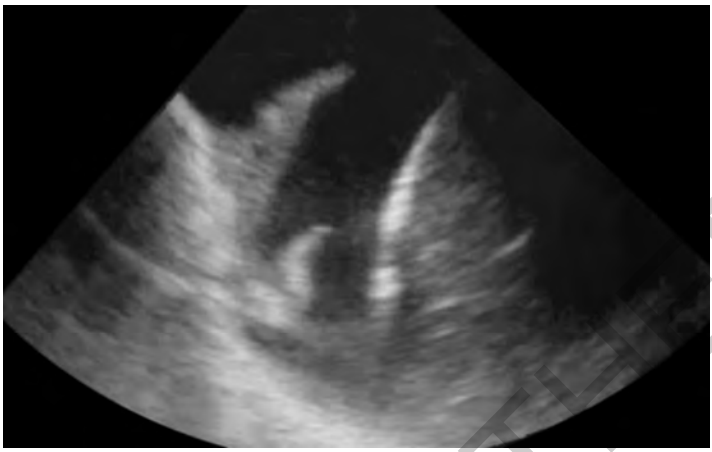


12. Chest X-ray taken after attempt of insertion on right central venous catheter (CVC). Comment on the chest X-ray and what steps needs to be taken?

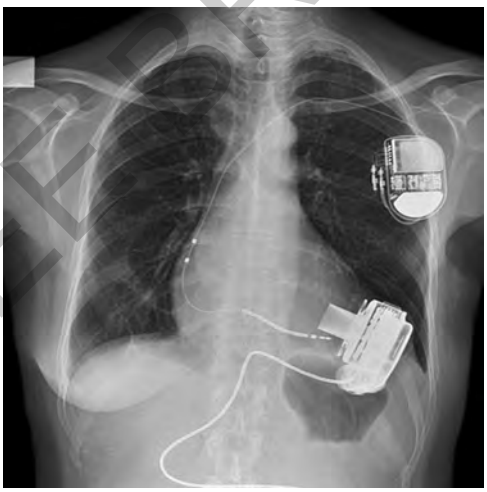


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13. A 66-year-old male presented to the ER with chest pain, shortness of breath for 1 week and orthopnea. Ultrasound chest is shown in the image. What is the diagnosis?



14. This patient is brought to the ER with complaints of giddiness and shortness of breath. After standing for a chest radiograph, the patient felt dizzy and had to be placed on the floor immediately. The resident doctor has placed a cardiac page as he could not feel a pulse. How will you assess the situation?

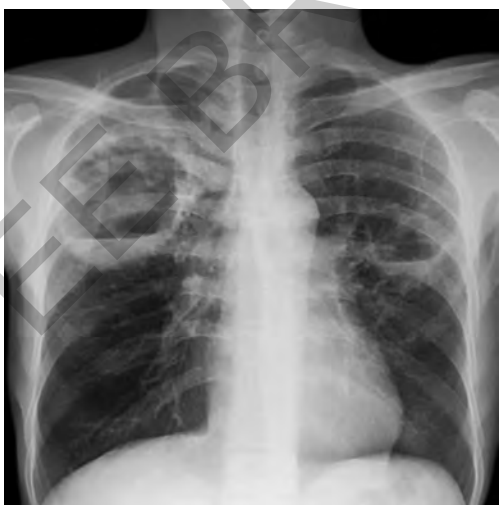


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15. Comment on the chest X-ray of the patient admitted with history of trauma.



16. A 72-year-old male, a known case of COPD, is currently admitted with complaints of fever, increased expectoration, and breathing difficulty. What are the differential diagnoses and immediate management?



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17. What is the Light's criteria for exudative pleural effusion? How will you workup this patient?
What are the diagnostic tests to be done for workup of tuberculosis?



18. A 36-year-old male presented with dyspnea on exertion over 2 weeks. Chest X-ray showed massive pleural effusion and the patient is shifted to ICU for ultrasound-guided thoracocentesis. After draining about 1 liter of pleural fluid, the procedure was stopped as the patient developed cough. Post procedure, the patient is still dyspneic, with heart rate of 105 beats/min and saturation still 90% on room air.
What is the diagnosis and management?



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19. A 46-year-old male, a known case of retroviral disease, presented to ICU with breathing difficulty of 3 days duration and dry productive cough. A CT chest obtained is shown in the image below. What are the differential diagnoses? What are the treatment strategies?



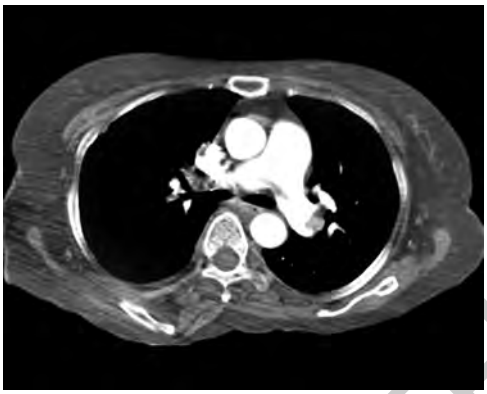
20. A 36-year-old male, with no comorbidities, presented with history of fatigue, weight loss, dry cough, and evening rise of temperature for 3 weeks duration. Sputum for acid fast bacilli, Gram stain, and culture are negative.
What are the differentials for the CT image shown below?



21. A 30-year-old female, software professional while disembarking a 2 hours flight developed acute onset of severe left-sided chest pain and breathlessness and cough and mild blood stain in sputum. In the airport, the documented vitals are—PR: 140/min, BP: 124/70 mm Hg, Chest: B/L clear, RR: 26/min, SpO_2 on room air: 92%, afebrile. Chest X-ray appeared normal and a 12 lead ECG showed sinus tachycardia.
    - CT taken is shown in the image below.

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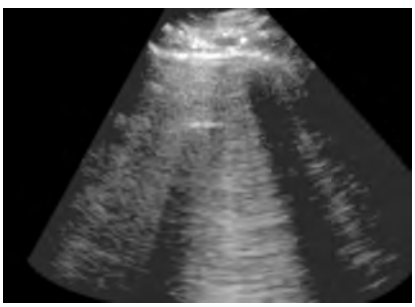
- What are the indications for thrombolysis in this case? What are the approved regimens for thrombolysis? How will you manage anticoagulation if the patient is not a candidate for thrombolysis?



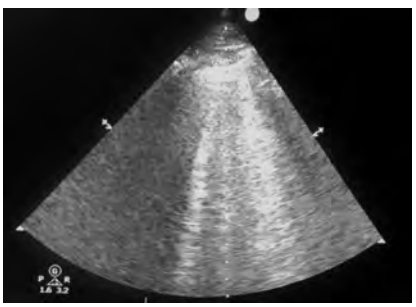
22. Check X-ray after left subclavian line insertion is given below. What is the diagnosis and management?



23. Lung ultrasound of a patient presenting to ER with breathing difficulty is shown below. What is the diagnosis?
    - What are the ultrasound features in case of ARDS?

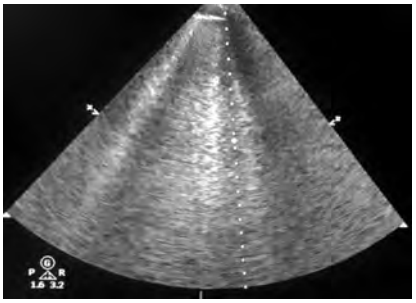


Right lower quadrant

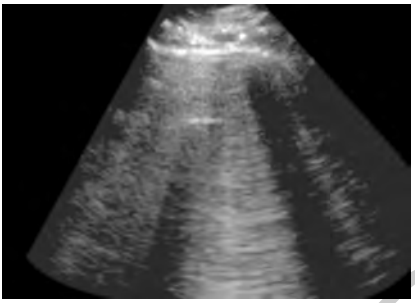


Right upper quadrant

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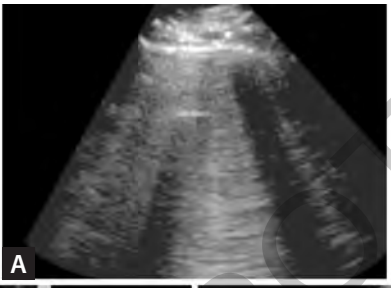


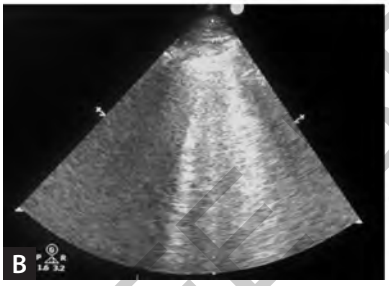
Left upper quadrant

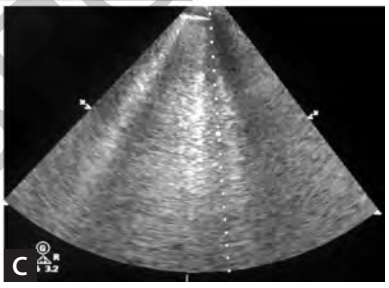


Left lower quadrant

24. Calculate the lung aeration score for each image in this patient.





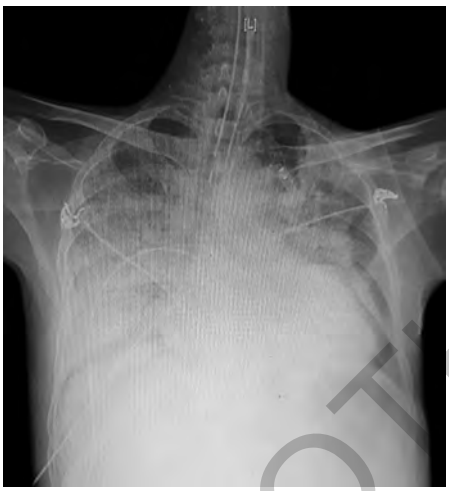


25. This patient is being ventilated with the following settings:
    - Volume control ventilation; TV 380 mL, RR 30/min, 100% FiO_2, and PEEP of 16 cm H_2O.
    - His peak inspiratory pressure is 36, and plateau of 28 cm H_2O.
    - Calculate the oxygenation index if the IE ratio is 1:1.

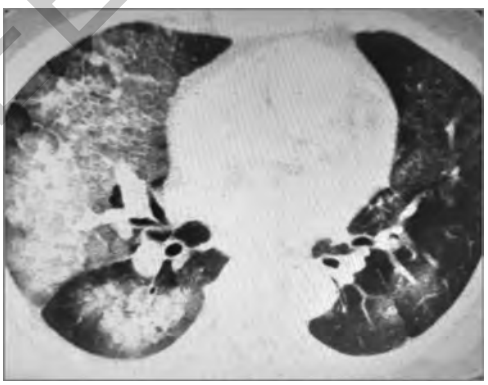


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26. Calculate the oxygenation index in this patient being ventilated with the following settings:
    - Pressure control ventilation, PC 28 cm H_2O, RR 30/min, 100% FiO_2, and PEEP of 16 cm H_2O, IE ratio is 1:1.

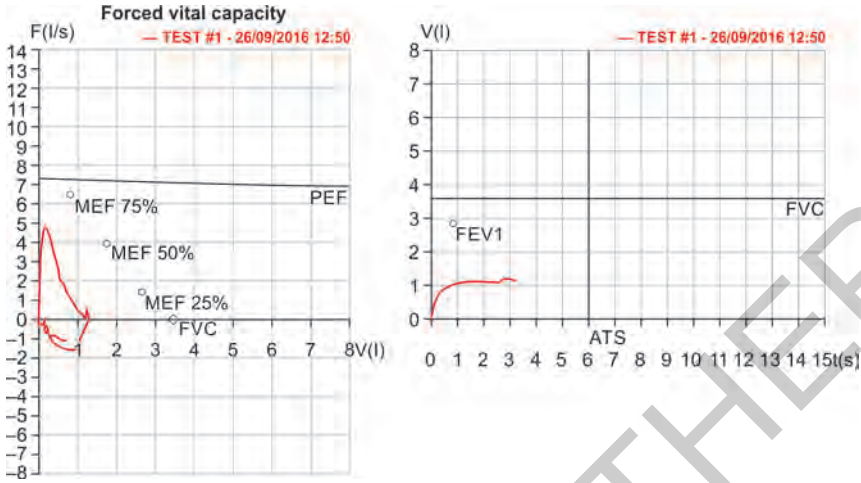


27. This 65-year-old patient, a known case of diabetes mellitus, hypertension, end-stage renal disease, post renal transplant on immunosuppressants now presents with fever, cough, and breathing difficulty that has been progressive over the past 5 days despite antibiotics on an outpatient basis. He was started on meropenem and teicoplanin but without clinical improvement.
    - A CT scan taken is given below. What is the differential diagnosis and and management?



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28. Comment on the acceptability criteria of the PFT.



Forced vital capacity				
Parameter	*UM*	*Pred.*	*Test#1*	*% Pred.*
FVC	l (btps)	3.60	1.24	34.5
FEV1	l (btps)	2.90	1.07	37.0
PEF	l/sec	7.25	4.78	65.9
PIF	l/sec		1.55	
FEV1/FVC%	%	77.7	86.3	111.1
FEV1/VC%	%	77.7	94.5	121.6
FEF 25–75%	l/sec	3.23	1.43	44.1
MEF 75%	l/sec	6.35	3.75	59.0
MEF 50%	l/sec	3.89	1.69	43.3
FET 100%	l/sec	1.52	0.60	39.1
FIVC	sec		2.9	
	l (btps)		1.10	

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OSCE in Critical Care Medicine-I

Salient Features

- Contains nearly 330 questions with model answers
- Questions range from the old tests, new techniques and devices, and results of laboratory and other investigations
- Questions also cover all organ systems and also all different ways these systems may be affected by the disease. The answers are structured in the manner in which the examinees should answer them in the examinations, to display their knowledge. These will help the examinees in developing the skills to face the objective structured clinical examinations (OSCEs) in their examination.

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