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RESEARCH ARTICLE

INTERACTIVE CASE DISCUSSION – HYPER TRANSLUCENT HEMITHORAX

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ABSTRACT

When a patient with COPD is admitted with acute exacerbation of dyspnea and chest x ray shows unilateral hyper translucency, most likely diagnosis is pneumothorax. Rarely other conditions may radiologically mimic pneumothorax. Treatment of pneumothorax in AECOPD is intercostal tube drain. But intercostal tube drain in other conditions which mimic pneumothorax radiologically can lead to complications. We discuss a case of translucent hemithorax in a patient with AECOPD which was mistaken for pneumothorax. Subject Area: Respiratory medicine Keywords: Unilateral hyper translucency; Bulla; Intercostal tube drain; AECOPD

INTRODUCTION

A 55 year old male, known case of COPD, presented to a peripheral hospital with increase in breathlessness with right sided pleuritic chest pain since 5 days. Chest x ray showed an area of hyper translucency involving more than 50% of right lung with absent broncho vascular markings. In view of suspected pneumothorax, intercostal tube drain was put. But he did not improve symptomatically. Chest x ray after intercostal tube drain did not show any expansion of the lung. Hence the patient was referred to our center.

Question 1:

Which of the following is not a radiological sign in pneumothorax?

- Hyper translucent lung field
- Absence of bronchovascular markings in the area of hyper translucency

- Shift of the mediastinum to opposite side
- Presence of air bronchogram in the hyper translucent area
- Collapsed visceral pleural line bounding the hyper translucent area medially

Answer: 4. Air bronchogram does not occur in pneumothorax as the air collects in pleural space. Rest all are radiological findings in pneumothorax (Chaturvedi, 2016). Air bronchogram is a definitive sign of lung parenchymal lesion. Since there was no expansion of lung after intercostal tube drain detailed history and physical examination was done to find the probable cause.

Question 2:

Which of the following is not a cause for persistent pneumothorax even after intercostal tube drain?

- Intercostal tube size less than 16 F
- Positive pressure ventilation

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- Blockage of intercostal tube
- Large Bronchopleural fistula
- Bronchial rupture

Answer: 1.

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 ()². Bronchopleural fistula, malposition or blockade of the tube is the most common causes for persistent pneumothorax after ICT drain. Detailed history in our institute revealed that he was a current smoker with smoking index of 800. He had history of progressive breathlessness and cough with scanty mucoid sputum since last 5 years. He was diagnosed as COPD 3 year back, was on inhaled medications. There was no specific precipitating cause for his sudden onset of breathlessness. There was no preceding history of trauma. He had no cardiac symptoms. No past history of heart disease, diabetes mellitus, hypertension or pulmonary tuberculosis.

Question 3:

Which of the following is the most common cause for pneumothorax in a patient with COPD?

- Pulmonary tuberculosis
- Chest trauma
- Rupture of emphysematous bulla
- Staphylococcus pneumonia
- Non invasive ventilation during AECOPD

Answer: 3.

COPD patient develop multiple bullae in upper lobes which can rupture to cause pneumothorax (Tanaka et al., 1993).

Physical examination: He was moderately built and nourished with BMI of 22.24kg/m². His respiratory rate was 24 cycles/minute, heart rate was 106/ minute; oxygen saturation at room air was 92%. Intercostal tube was seen on right 5th intercostal space in the mid axillary line.

There was no air column movement in the intercostal tube. Check x ray showed intercostal tube in situ with hyper translucent lung on the right side with bilateral hyper inflated lung fields. History and physical examination findings did not reveal any specific cause for persistent hyper translucency even after ICT drain. So a radiological mimic of pneumothorax was considered as differential diagnosis.

Question 4:

Which of the following is not a radiological differential diagnosis for pneumothorax?

- Large cyst
- Overlapping breast margin
- Pneumopericardium
- Large cavity
- Bulla

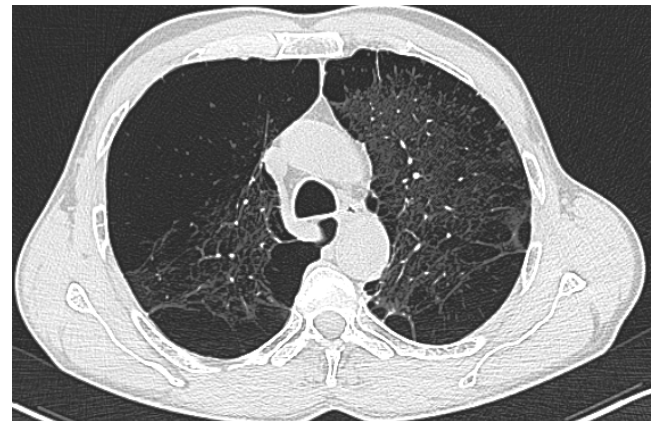
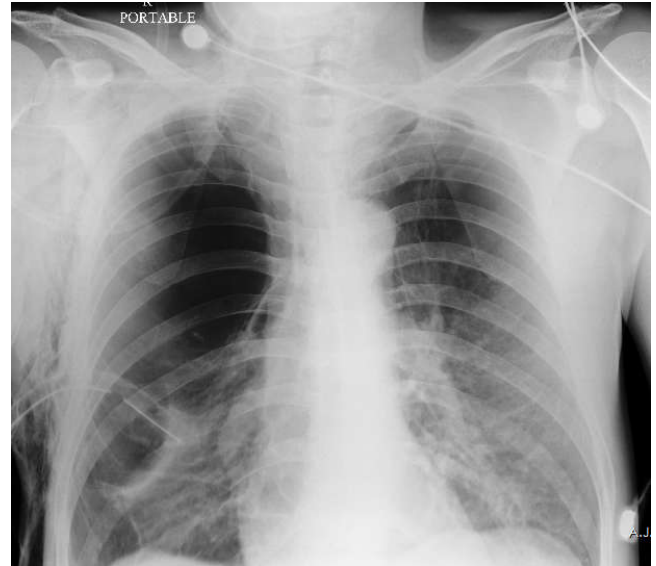
Answer: 3.

Pneumopericardium can be easily differentiated from pneumothorax by chest radiograph⁴. In pneumopericardium heart will be partially or completely surrounded by air, with the pericardium sharply outlined by air density on either side.

Question 5:

What is the next diagnostic investigation in this patient?

- Thoracic ultrasound
- High resolution CT scan of chest
- Fluoroscopy
- Thoracoscopy
- Bronchoscopy



Answer: 2. Investigation of choice for definitive diagnosis of a hyper translucent hemithorax is high resolution CT scan (HRCT) (Pearls and Pitfalls in Emergency Radiology). HRCT scan of thorax showed emphysematous bullae sub-pleurally in both lung fields with bronchiectatic changes in bilateral lower lobes. ICD tube was removed and patient was started on symptomatic treatment for exacerbation of COPD. Patient improved symptomatically.

Question 6:

Which of the following is not a radiological sign to differentiate bulla from pneumothorax?

- Area of hyper translucency
- Presence of visceral pleural line in pneumothorax
- Presence of double wall sign in case of bulla
- Bulla are concave toward lateral chest wall
- Bulla do not conform to the contour of costophrenic sulcus

Answer: 1. Hyper-translucency occurs in both the conditions due to air trapping⁵.

Question 7:

Which of the following is not a cause of bulla in lung?

- Smoking
- IV drug abuse
- Alpha-1 antitrypsin deficiency
- Marfan's syndrome
- Langerhans cell histiocytosis

Answer: 5. Langerhans cell histiocytosis causes cystic lung disease (Collins, 2007).

Question 8:

Which of the following is not an indication for Bullectomy?

- Large single bulla with symptoms
- Bulla occupying more than 1/3 hemithorax
- Large bulla with chronic corpulmonale
- Infected single large bulla
- Bulla with rapid increase in size and chest pain

Answer: 3. Chronic corpulmonale is a contra indication for Bullectomy as post operative morbidity and mortality is high⁷.

Question 9:

Which of the following is a rare complication of bulla in the lungs?

- Secondary infection in the bulla
- Spontaneous pneumothorax
- Bronchogenic carcinoma
- Large bulla causing pressure effects
- Hemoptysis

Answer: 5. Hemoptysis is a rare complication of bulla.

Question 10: Which of the following is not a complication of intercostal tube drain into a bulla?

- Pneumothorax.
- Persistent Bronchopleural fistula
- Bleeding
- Re-expansion pulmonary edema
- Infection

Answer: 4: Since bulla is a lung parenchymal lesion re-expansion pulmonary edema does not occur as a complication (Greenberg, 2003). This patient underwent bullectomy. He made uneventful recovery. Learning points Before putting intercostal tube drain in a suspected pneumothorax, diagnosis needs to be confirmed. Other conditions which may mimic pneumothorax radiologically need to be excluded before putting intercostal tube drain. Proper history, physical examination, comparison of serial chest radiographs and CT scan of thorax will help to establish the diagnosis.

REFERENCES

- Altinsoy B., Altintas N. 2011. Diagnostic approach to unilateral hyperlucent lung. *JRSM short reports*. 2 (12): 95. doi:10.1258/shorts.2011.011080 - Pubmed
- Chaturvedi A., Lee S., Kliensky N., Chaturvedi A. 2016. Demystifying the persistent pneumothorax: role of imaging. *Insights Imaging*. Jun. 7 (3):411-29. [Medline]
- Collins J., Stern EJ. 2007. Chest radiology, the essentials. Lippincott Williams & Wilkins. ISBN:0781763142.
- Greenberg JA., Singhal S., Kaiser LR. 2003. Giant bullous lung disease: evaluation, selection, techniques, and outcomes. *Chest Surg Clin N Am.*, 13:631-649. [PubMed]
- Laws D., Neville E., Duff J. 2003. British Thoracic Society guidelines for the insertion of a chest drain. *Thorax*;58 (Suppl II):ii53-ii59
- Pearls and Pitfalls in Emergency Radiology: Variants and Other Difficult Diagnoses. Cambridge University Press. ISBN:110702191X.
- Tanaka F., Itoh M., Esaki H., Isobe J., Ueno Y., Inoue R. 1993. Secondary spontaneous pneumothorax. *Ann Thorac Surg.*, 55(2):372-76.
- Vigneswaran WT., Townsend ER., Fountain SW. 1992. Surgery for bullous disease of the lung. *Eur J Cardiothorac Surg.*, 6:427-430.
