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BMH Med. J. 2017;4(3):96-99 **Case Report**

Lung Point: A Warning Sign In Pneumothorax

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Abstract

Lung ultrasound is gaining more importance in the management of ambulatory and critically ill patients in the last decade. Point of care ultrasound evaluation will have impact on efficient management of patients presenting with acute dyspnea. Here we report a case of pneumothorax in which point of care ultrasound prevented inadvertent insertion of chest tube. Identification of lung point in a case of pneumothorax and its importance has been explained.

Keywords: Lung ultrasound, lung point, pneumothorax

Case Report

A middle aged male, non smoker, without any history of significant illness in the past, presented to emergency room with history of dry cough and grade 2 exertional dyspnea of two weeks duration, with sudden worsening of dyspnea associated with left sided pleuritic chest pain. On examination patient was afebrile, tachypneic with a respiratory rate of 32/min and saturation of 97% at room air, blood pressure 110/70mm Hg and heart rate 80/min. On respiratory system examination- trachea and apex beat were shifted to right, hyper resonant percussion note on left side, vocal fremitus, vocal resonance and breath sounds decreased on left side. All routine investigations were within normal limits. Chest X-ray showed left pneumothorax (**Figure 1**).

A point of care ultrasound performed using curvilinear probe (2-5MHz) showed that lung sliding was absent in B mode and in M mode *stratosphere sign* was seen on left side (**Figure 2**). Then the probe was gradually moved to the 5th and 6th intercostal spaces in the mid axillary line, *lung point* (**Figure 3**) was found in the 5th intercostal space and lung sliding in 6th intercostal space on same side, indicating that chest tube insertion in the these spaces may cause lung injury. For confirmation of the ultrasound findings CT thorax was done which showed left pneumothorax with partially collapsed lung in the lower part of chest.

12F pig tail catheter was inserted under ultrasound guidance in the 4th intercostal space above the lung point which was seen in 5th intercostal space using Seldinger technique. Post procedure there was sudden decrease in symptoms. Post procedure X-ray showed non homogenous infiltrates in the left lung suggestive of re-expansion pulmonary edema, (**Image 4**) which was managed conservatively. Repeat X-ray next day showed clearance of pulmonary infiltrates confirming the diagnosis of re-expansion pulmonary edema. Repeat X-ray after 2 days showed completely

expanded lung on left side and patient was discharged after removing the pig tail catheter.

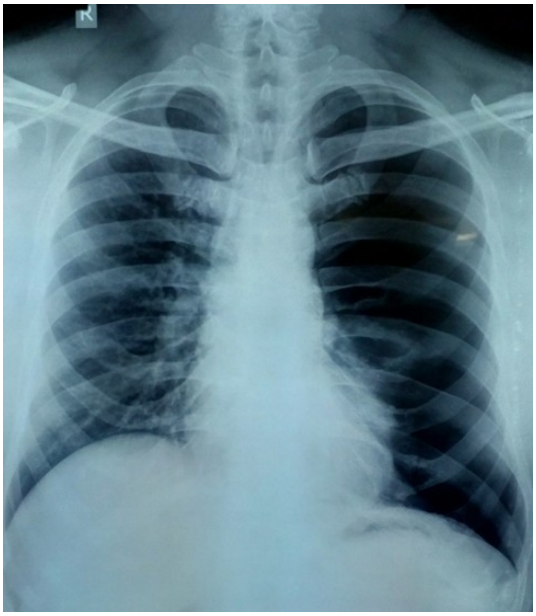

Figure1: Chest X-ray showing pneumothorax on left side

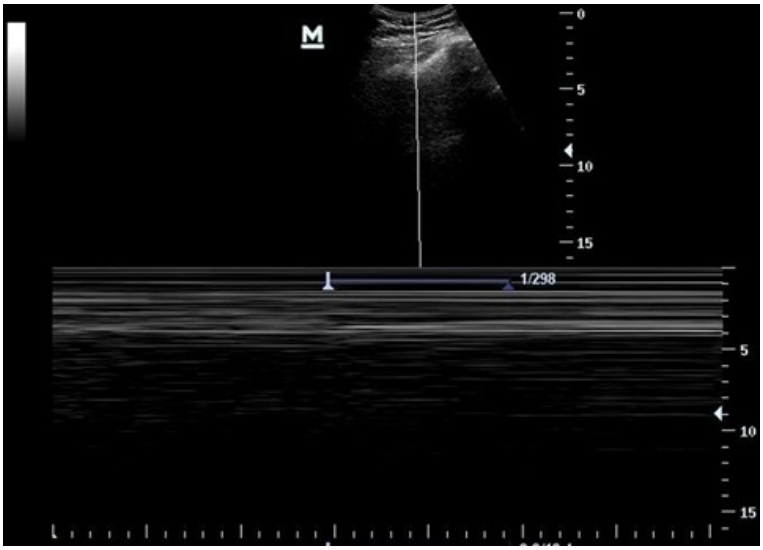

Figure 2: M-mode stratosphere/bar code sign in pneumothorax

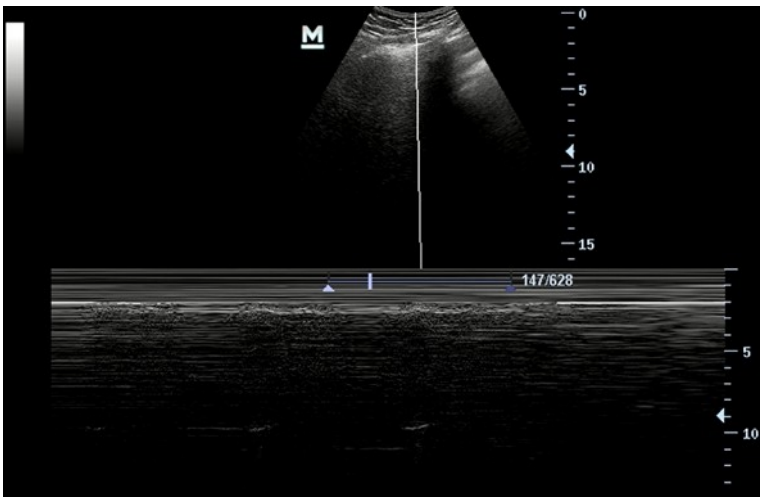

Figure 3: Lung point in M-mode in pneumothorax

Figure 4: Chest x ray showing infiltrates in the left lung after insertion of pig tail catheter

Discussion

Lung ultrasound is gaining more importance in the management of ambulatory and critically ill patients in the last decade. Lung ultrasound is better than chest X-ray and is comparable to computed tomography (CT) in experienced hands in the assessment of ambulatory and critically ill patients presenting with dyspnea. Normal lung ultrasound examination (B mode) shows thickened white line which moves to and fro with respiration produced by sliding of parietal and visceral pleurae. The thickened line is called pleural line and to and fro movement seen is called lung sliding sign (simulates ants crawling in a line). Lung sliding in normal lung is seen as sea shore sign in M mode, upper part corresponds to motionless chest wall and granular part below that corresponds to sliding of pleurae. The presence of lung sliding practically excludes the diagnosis of pneumothorax in a patient presenting with acute dyspnea [1]. In a pneumothorax as in our case during ultrasound examination there will be absence of lung sliding in B-mode as the parietal and visceral are separated by air between them and in M mode horizontal lines are seen from top to bottom. This is called stratosphere sign, (also called as bar code sign) indicates that upper chest wall and pleural line both are motionless. According to the CT correlations the specificity of absent lung sliding alone is 91% in pneumothorax [2]. The lung point [3] in the ultrasound corresponds to the interface of normal lung as it transitions to pneumothorax. The lung point is a specific sign of pneumothorax, alternating lung sliding and abolished lung sliding present at the same location [3]. Lung point also indicates that lung surface comes in contact with chest wall at the lung point. Chest tube insertion at this site can cause injury to the lung tissue. So after identification of lung point, the chest tube should be inserted in the intercostal spaces above the lung point so as to avoid injury to the lung. Re-expansion pulmonary edema (RPE)is a rare complication associated the intercostal drainage of pleural fluid or pneumothorax. Exact pathology of RPE is not clear. The clinical manifestations vary considerably, some patients are completely asymptomatic and RPE may be diagnosed only after radiology and some patients may have life threatening complications. Death is seen in about 20% patients [4].

Conclusion

The presence of lung point in ultrasound evaluation of pneumothorax is specific as well as a warning sign that chest tube insertion should be attempted only above it. The growing availability of relatively inexpensive and portable ultrasound machines has greatly enhanced the diagnostic

capabilities of clinicians in the assessment of pleural diseases. Ultrasonography provides accurate, prompt, radiation free, real time imaging.

References

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