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Short Report

A Giant Bulla of the Lung Mimicking Hydro-pneumothorax with Contra Lateral Mediastenal Shifting

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Abstract:

Herein, we report a case of giant bulla of the left lung in a 35 years old woman mimicking tension puemothorax.Based on initial clinico-radiological parameters, she was treated with intercostal tube drain and as her condition did not improve after chest tube insertion, she was referred to our centre. Computed tomography of thorax was done and it was reported to be a large hydropeumothorax causing compression collapse of left lung .We decided to plan for thoracotomy and it was revealed a large bulla arising from left lower lobe which was resected with significant radiological recovery. Giant bulla should be included in the differential diagnosis of pneumothorax.

Introduction:

Bullae are defined as sharply demarcated, air-filled spaces within the parenchyma of the lung, measuring one centimetre or greater in distended diameter, which are formed as a result of the destructive process of emphysema or alpha 1 antitrypsin deficiency. They are restricted by a fibrous wall and can be trabeculated due to remnant of alveolar septa.[1,2] Acquired immunodeficiency syndrome, any type of smoking, intravenous drug abuse, sarcoidosis, genetic disorders like-Ehlors-Danlos or Marfan syndrome and cystic lesions of the lung have been reported to be associated with the development of bullous emphysema.[3] Bullae can produce signs and radiologic appearance of pneumothorax and it is important to differentiate them before treatment. The differentiation between giant bulla and pneumothorax can be very difficult and often leads to inaccurate diagnosis and management.[4]Herein we present a case of giant bulla of the lung misdiagnosed as a tension pneumothorax.

Case report:

A 35 years old woman was admitted to our hospital in June 2013 with a history of non-productive cough for last 3 months, fever for last 1 month and shortness of breath for last 1month.She was referred to our centre because of failed treatment of tension pneumothorax with a chest tube. On admission to our hospital, the patient had one chest tube inserted in the left pleural space without any collection in the chest drain bag. She did not give any history of smoking or drug abuse except history of biomass fuel exposure for last 10 years and on examination; there was mild pallor without any clubbing or peripheral oedema. Respiratory examination was suggestive of diminished breath sound over the left hemi thorax with diminished vocal resonance. Cardiovascular system was within normal limit. Initial chest roentgenogram, demonstrated a large left thoracic radiolucency with flattened diaphragm and mediastinal shift to contralateral side (fig.-1). Another chest roentgenogram,

Fig.-1: *Showing chest x-ray PA view of adult female showing hyper lucent left hemi thorax with flattening of diaphragm and contralateral mediastinal shift.*

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which was done after inserting the chest drain, showed no significant improvement of the disease even after repositioning the tube twice while admission(fig: 2) . Computed tomography thorax was done and the report of that was suggestive of large left sided hydropeumothorax with chest tube in situ (fig: 3).Due to lack of response in conservative approach, thoracotomy was planned. Left lateral thoracotomy was done showing a large bulla originated from left lower lobe containing purulent material adherent to diaphragm not connecting with lungparenchyma. The excised material was sent to histopathological examination. Operation was uneventful and subsequent chest x-ray was suggestive of good recovery (fig: 4).Review chest x-ray was done (fig: 5) and histopathological report suggestive of large bulla with destruction of normal parenchyma.

Fig.-2: *Showing hyperlucency in the left hemi thorax with horizontal fluid level and intercostal tube in situ.*

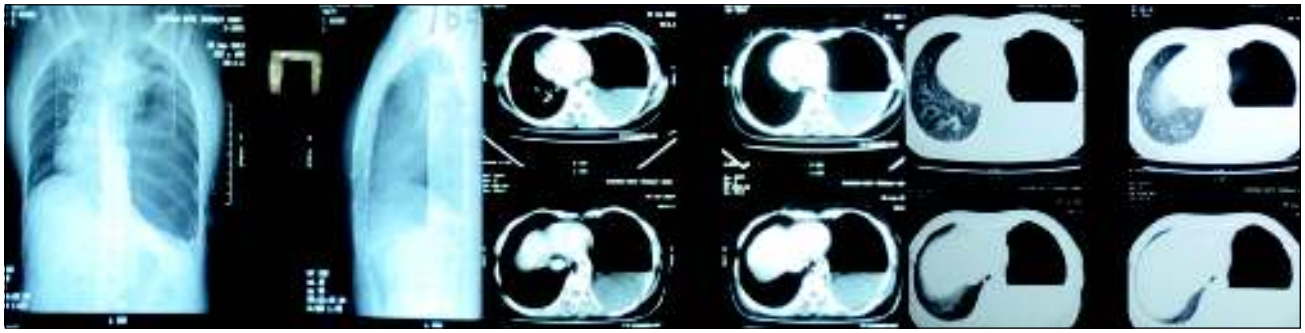

Fig.-3: *Showing CT thorax showing left sided hydropeumothorax with compression collapse of the normal lung tissue.*

Fig.4: *Showing post thoracotomy chest x ray with two chest tubes in situ after bullectomy*

Discussion:

Giant bullae refers to the enlargement of one or more bullae to such a degree that they fill more than one third of the hemi thorax.[5] Anatomically, bullae have thin outer walls with variable thicknesses that contains relatively thin remnants of distending emphysematous lung. They have tendency to grow based on check valve mechanism and do not participate to a great extent in ventilation or gas exchange.[1]Klingman divided bullae into two group: those with structurally normal lung tissue (20% of patients) and those in which the rest of the lung exhibits abnormal tissue (80% of patient).[6] Giant bullae are often first detected on chest x ray and manifested as thin walls with sharply demarcated areas of avascularity.[7] Pneumothorax can usually be considered in differential diagnosis. HRCT thorax is the most accurate and useful imaging procedure which must be obtained before surgery. On CT bullae appears as avascular area with curvilinear boundaries.[2] Without visualisation of the outer wall of the bullae, a large airspace in the chest could be pneumothorax

or bullae. Double wall sign is an available sign to help distinguish a pneumothorax from adjacent giant bullae.[8,9] Giant bullae can produce shifting of the mediastinum to opposite side that mimics tension pneumothorax. Patients who have non-functioning bulla that compresses normal lung tissue and occupy space will benefit the most from the surgical procedure.[10]However there are some complications associated with incorrect diagnosis such as infection, prolonged air leak and mortality which should be born in mind.

Conflict of Interest : None

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