

Secondary Spontaneous Pneumothorax : Bullous Emphysema or Bullous lung Disease

Munje R¹, Atram J², Gaur S³, Walke V⁴

Case 1 :

68 years old male patient, came to the OPD with complaints of increased breathlessness, cough with expectoration and chest pain on ltside. On examination patient had Pulse-100/min, RR-30 with SpO₂ of 80% on room air, the breath sounds were decreased on left side with bilat polyphonic rhonchi.

X-ray chest PA view S/o Pneumothorax on left He was having h/o breathlessness since 2 years for

which he was taking inhaled bronchodilator, and was chronic smoker having smoking index of 600. CT Chest done to evaluate the cause of pneumothorax and showed left sided Pneumothorax with paraseptal emphysema with B/L upper lobe multiple bullae, largest of size (5.6*3.9).Pleural aspiration with under water seal was done i.v.o breathlessness. Approximately 800ml of air was aspirated from pleural space. Patient clinically improved.

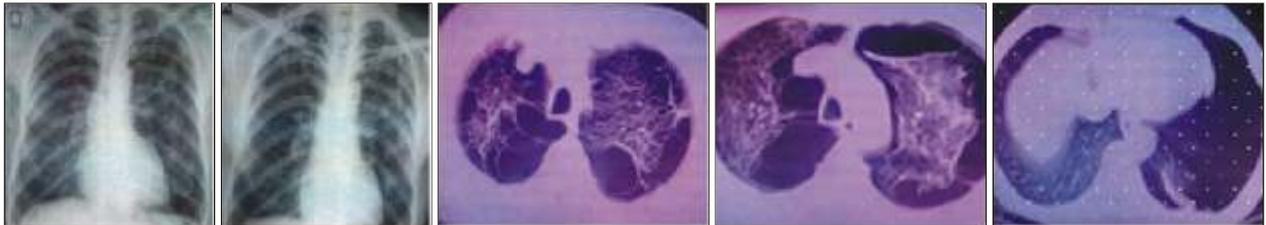


Fig. 1 & 2 showing ltsided pneumothorax and expanded lung after Pleural aspiration.

Fig. 3 to 5 showing multiple bullae b/l upper lobe and lt lower lobe with paraseptal emphysema.

Fig. 5 showing pneumothorax on lt side.

Case 2 :

55 years old male patient, came with complaints of increased breathlessness and chest pain on left side since 2 days before hospitalization. Patient was smoker. On examination he was tachypneic with RR-34/min., pulse 118/min. and SpO₂ 76%. On Systemic examination, breath sounds were absent on lt side as a whole and decreased in rtinframammary region. X-ray chest PA view revealed Lt sided Pneumothorax, and giant

emphysematous Bulla in right Lower zone. ICD with under water seal was inserted on the left side in view of severe respiratory distress and low spO₂. Patient clinically l improved. CT chestdone which showed Multiple bilateral Upper lobe and Lower Lobe Bullae with Lt sided Pneumothorax , emphysematous changes with Giant emphysematous Bulla in Rt Lower Lobe. Case was diagnosed as Bullous Emphysema.

¹Professor & HOD, ²Assistant Professor
³Associate Professor, 4.Junior Resident
 Department of Pulmonary Medicine,
 Indira Gandhi Govt. Medical College, Nagpur.

Address for Correspondence -

Dr. Radha Munje

E-mail : radhamunje@yahoo.com

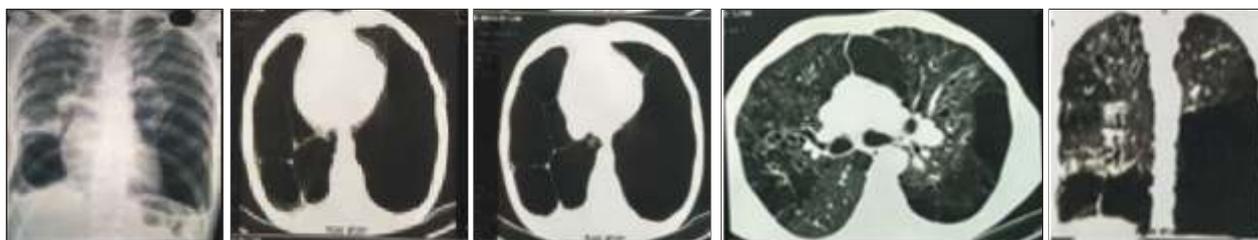


Fig. 1 Showing Lt sided Pneumothorax with Giant bulla in rt lower zone.

Fig. 2 to 5 CT chest showing Paraseptal emphysema Multiple bullae b/l lower lobe with Pneumothorax on lt side.

Bullous emphysema was described by burke as idiopathic, distinct clinical syndrome of severe progressive dyspnea caused by extensive, predominantly asymmetric upper lobe emphysema that may lead to respiratory failure while Bullous lung disease is an entity characterized by the presence of bullae in one or both the lung fields, with normal intervening lung¹.

Bullae are air-filled, thin-walled spaces greater than 2 centimeter in diameter in the distended state and is identified as area of transradiancy that usually do not contain blood vessels and is confined by visible walls². Giant bullae are those that encompass more than one-third of the lung volume. The presence of emphysema associated with large bullae is referred to as bullous emphysema. It is either congenital without general lung disease or a complication of chronic obstructive lung disease with generalized lung disease. Extensive paraseptal emphysema coalesces to form giant bullae, compressing the normal lung parenchyma and often displacing it centrally. Most patients are young male, the risk factors are smoking, alpha-1-antitrypsin deficiency, and marijuana abuse³.

The giant bullae may remain asymptomatic for a long time, their progression may cause worsening dyspnoea. The bullae range in size from a few centimeters to giant bullae nearly filling hemithorax, mimicking a pneumothorax. A major complication of vanishing lung syndrome is pneumothorax. Infection of the bulla is also common. Computed tomography (CT) is an important tool for the diagnosis of this bullous disease^{4,5}.

CT scans are the most accurate means of detecting emphysema, determining its type and extent and distinguishing giant bullae from pneumothorax. High-resolution CT is an important tool for preoperative assessment, because it can identify underlying centrilobular emphysema, which is synonymous with a diagnosis of bullous emphysema. Moreover, it also allows assessment of associated diseases such as bronchiectasis, infected cysts, pleural disease, and pulmonary hypertension. Patients with giant bullous emphysema developing a secondary spontaneous pneumothorax can also be detected. PFTs can also differentiate between the bullous lung disease and with bullous emphysema. PFT values from a patient with bullous lung disease typically show a restrictive defect, whereas those from a patient with bullous emphysema show an obstructive defect.

Bullectomy, either via video thoracoscopy (VATS) or conventional thoracotomy, is the treatment of choice for giant bullous lung disease, even if asymptomatic. Bullectomy is indicated for symptomatic patients who have incapacitating dyspnea or chest pain, and who have complications related to bullous disease such as infection or pneumothorax, mainly in case of Bullous Lung Disease. Asymptomatic bullae are treated conservatively by reassurance, advise to stop smoking, avoid strenuous activities like scuba diving that can promote the rupture of the bullae. For patients of Bullous emphysema, Surgery is not much Beneficial. lung-volume reduction surgery (LVRS), which is surgical removal of 20-30% of nonbullous emphysematous lung from each side. The recently published National Emphysema Treatment Trial

showed that LVRS benefits selected subgroups of COPD patients who have upper-lobe disease and poor exercise capacity⁶. Indications for surgery with giant bullae are (1) increasing bulla size (2) Pneumothorax (3) Pulmonary insufficiency, and (4) infection within the bulla.

Aim of presenting these two case reports is that case of Pneumothorax whether it is primary or secondary should be evaluated in detail as management varies for these two different etiologies. specially in patients having high smoking index. CT chest should be done to find underlying Bullae which would be not visible on chest X-ray in a case of Pneumothorax.

Conflicts of interest : None reported by Author

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