



## SIMULTANEOUS BILATERAL SPONTANEOUS PNEUMOTHORAX WITH LEFT BRONCHOPLEURAL FISTULA IN ADULT: A RARE CASE REPORT

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**ABSTRACT** **Background:** Simultaneous primary bilateral spontaneous pneumothorax is an extremely rare and fatal condition. Patients usually have no relevant medical conditions. However, few cases may have risk factors as smoking, being young, and male gender. We reported a case of a healthy male who presented with BPSP. Case Presentation. A 40-year-old man presented with acute worsening shortness of breath overnight. Chest X-ray performed showed bilateral large pneumothorax with significantly compressed mediastinum. Chest tubes were placed bilaterally with immediate clinical improvement. However, the chest tubes continued to have an air leak without full lungs expansion on left side suggesting BPF. The patient underwent instillation of autologous blood patch twice. The patient had been doing well with no recurrence of pneumothorax. Conclusion. Bilateral spontaneous Pneumothorax is a rare clinical condition, Due to its life-threatening nature, early diagnosis and appropriate treatment in SBSP case can save patient's life.

**KEYWORDS :** Bilateral, smoking, male, BPF

### INTRODUCTION

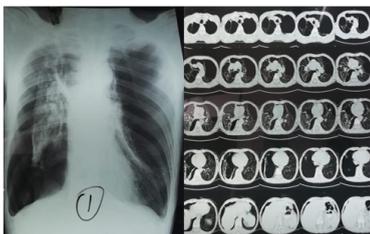
Pneumothorax is usually categorized into spontaneous and traumatic. Spontaneous pneumothorax (SP) comprises the largest group and is classified into primary spontaneous (PSP) and secondary spontaneous pneumothorax. PSP usually occurs in young, tall, thin men, especially smokers, in the absence of an underlying lung disease [1].

Although, SP is a relatively common condition, bilateral primary spontaneous pneumothorax (BPSP) is a very rare clinical condition with an occurrence ranging from 1.3 to 1.9% of all cases of SP [2]. Herein, we present a case of BPSP in a male patient, which is an exceptionally rare event.

### CASE REPORT

A 40 year-old man was admitted to the Emergency Room complaining of chest pain and breathlessness of acute onset. The patient was conscious, cooperative and in moderate respiratory distress. He was afebrile with a heart rate of 101 beats per minute, blood pressure of 130/90 mmHg, respiratory rate of 30 breaths per minutes and peripheral oxygen saturation was 88% on room air.

The patient had decreased breath sounds bilaterally. Supplemental oxygen via a nasal cannula was started, and an emergent chest radiograph was obtained revealing a simultaneous bilateral pneumothorax which was larger on the left side. Past history, the patient had Anti Tubercular Treatment for Pulmonary TB for 9 months duration 15 years back. The patient was a smoker for last 20 years.



**Figure 1: Bilateral Pneumothorax**

The patient was treated with chest tube insertion on both side and the patient got immediate relief. Chest CT was obtained which showed multiple thin walled subpleural cysts in bilateral apices with left side bronchopleural fistula. Bilateral chest expansion was noted in Chest X ray after the procedure. Routine blood investigations were

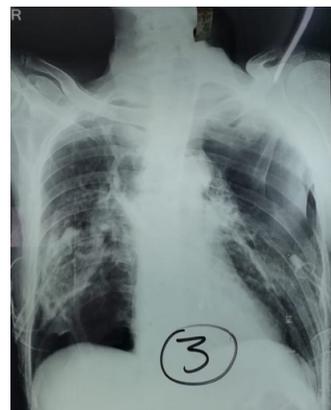
normal. After one week, the chest tube was removed on right side as there was no air leak, no drainage and re-expansion of the chest.



**Figure 2: Bilateral Pneumothorax with chest tube**

The patient had BPF on left side. The patient underwent instillation of autologous blood patch, but after procedure lung had limited expansion with persistence of the air leak. Four days later,

the patient underwent a second instillation of autologous blood patch. Chest tube was removed 1 week later. Patient had complete reexpansion of the left lung and was discharged from hospital without any recurrence.



**Figure 3: Bilateral Pneumothorax with chest tube with Right side expansion and left side BPF**



**Figure 4: Resolved Bilateral Pneumothorax after autologous blood patch on left side**

## DISCUSSION

The abnormal presence of air in the pleural cavity, separating the visceral from the parietal

pleura, with subsequent collapse of the adjacent lung, is known as pneumothorax. The age-adjusted annual incidence of PSP ranges from 7.4 to 18 cases per 100,000 population in males and 1.2 to 6 cases per 100,000 in females [2]. The male-to-female ratio ranges from 3:1 to as high as 6:1 and the characteristic patient is a tall, thin male in the third to fifth decade of life. In addition to male sex, tobacco smoking also increases the risk of spontaneous pneumothorax and has been associated with a nine-fold plus of developing a first PSP.

Although the mechanism responsible for PSP is not clearly understood, experimental overdistention of normal lungs results in rupture of subpleural alveoli. Air can move along the broncho vascular sheath medially to produce pneumomediastinum, which may be associated with subcutaneous emphysema or pneumothorax, or it can dissect to the peripheral portion of the lung. Peripheral dissection of air may result in an air-containing space within or immediately beneath the visceral pleura. Pathologic studies of resected lungs from patients with PSP usually show one or both of these types of airspaces, a bleb or a bulla. A pneumothorax may occur when these peripheral bullae or blebs rupture into the pleural space [3].

Patients may present alternating clinical signs and symptoms, ranging from mild dyspnea to cardiopulmonary failure. Patients are admitted to the emergency with sudden onset of dyspnea and pleuritic chest pain on the side of the pneumothorax. Physical examinations may appear normal in minimal pneumothorax cases. In patients with excessive pneumothorax, hyper resonance is detected with percussion, and breath sounds are diminished or lost. Chest radiographs form the basis of the radiological examination. Computerized tomography of the thorax is indicated to detect underlying causes of pneumothorax.

In the treatment of pneumothorax, the aim is to achieve complete lung expansion and prevent a recurrence. There are various treatment modalities, ranging from observation to thoracotomy. These include needle aspiration, percutaneous catheter drainage, tube thoracostomy with chemical pleurodesis and video-assisted thoracoscopic surgery (VATS) [4]. Surgical treatment is recommended to reduce the risk of recurrence in SBSP treatment. Bullectomy is the most effective method for preventing recurrences. In addition, apical pleurodesis further reduces the risk of recurrence [5]. Chest drainage constitutes the basis of initial treatment. Planning other surgical procedures or pleurodesis according to the patient's clinical presentation and underlying disease is more appropriate.

## CONCLUSION

Bilateral spontaneous Pneumothorax is a rare clinical condition that frequently occurs as a result of underlying lung disease. As the recurrence of bilateral spontaneous pneumothorax is life threatening, a treatment approach should be applied with the aim of preventing recurrence. Due to its life-threatening nature, early diagnosis and appropriate treatment in SBSP case can save patient's life.

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