

# Recurrent Spontaneous Tubercular Pneumothorax Misdiagnosed and Treated as Traumatic Pneumothorax: A Pediatric Case Report

Smrati Jain<sup>1</sup>, Akanksha D Srivastava<sup>1</sup>, Manasi Patil<sup>2</sup>, Saman Beg<sup>1</sup>, Jaigam Abbas<sup>3</sup>

<sup>1</sup>Assistant Professor, Department of Pediatrics, King George Medical University, Lucknow, Uttar Pradesh, India. <sup>2</sup>Junior Resident, Department of Pediatrics, Career Institute of medical sciences, Lucknow, Uttar Pradesh, India. <sup>3</sup>Professor & Head, Department of Pediatrics, Career Institute of medical sciences, Lucknow, Uttar Pradesh, India.

## Abstract

**Background:** The transfer of air from the lung into the pleural cavity in the absence of trauma is referred to as a spontaneous pneumothorax (SP). As opposed to a primary spontaneous pneumothorax (PSP), secondary spontaneous pneumothorax refers to an SP in a patient with underlying chronic lung disease. Here we report a case of a 10-year-old male who initially presented with post-traumatic hydropneumothorax. Later on, diagnosed with spontaneous pneumothorax secondary to pulmonary tuberculosis on the basis of radiological evidence. Recurrence of traumatic pneumothorax is rare if managed properly, therefore when searching for the cause of spontaneous pneumothorax, clinicians should not overlook tuberculosis-related secondary pneumothorax, which is a medically treatable cause of pneumothorax.

**Keywords:** Tuberculosis, Spontaneous pneumothorax, trauma.

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## INTRODUCTION

As compared to adults, the pediatric population is more susceptible to developing tuberculosis resulting in high hospitalization rates, morbidity, and mortality. Over the past few decades, a growing incidence of SSP caused by TB has been described.<sup>[1]</sup> When searching for the cause of spontaneous pneumothorax, people should not overlook tuberculosis-related secondary pneumothorax, which should be diagnosed and treated as soon as possible.

## Case Report

We present a case of a 10-year-old male belonging to a lower socioeconomic background with a history of fall from a bicycle 15 days back, who came to the emergency department with complaints of right-sided chest pain exacerbating with inspiration, high-grade fever from 7 days, productive cough from 7 days and loss of appetite. Patient gave no history of TB Contact, weight-loss, night sweats. In less than an hour, his symptoms had worsened to the point of acute dyspnoea with tachypnoea, nasal flaring, intercoastal, and sub-coastal retraction. On examination, the air entry to the right side was reduced significantly. Chest X-ray [Figure 1-A] was suggestive of homogenous echogenic effusion on the right side with visible visceral pleural edge and no lung markings beyond this line with collapse of the right lung with mediastinal shift to the left side. CT Thorax was suggestive of moderate hydropneumothorax with right lung consolidation and collapse with a shift of the mediastinum. Gastric aspirate was sent for CB NAAT which was negative. The patient was managed symptomatically

ICD insertion was done, and IV antibiotics were started. After ICD insertion X-ray was suggestive of right lung re-expansion with heterogenous opacity. Serial chest X-rays were done to monitor the size of pneumothorax and lung expansion. The patient was clinically improving and the size of the pneumothorax had reduced. His physical exam was within normal limits, with improved air entry to the right side. He was monitored for the next few days until no further air leak was noticed. The patient was discharged on persistent request. The patient missed follow-up visits and was brought in OPD with complaints of chest pain after 10 days. On examination air entry to the right side was again reduced with no signs of respiratory distress. X-ray chest was suggestive of a recurrence of pyopneumothorax [Figure 1b] on the right side with no pretracheal or perihilar lymphnode enhancement. The patient was immediately admitted to Paediatric ICU. ICD was inserted in the 4th intercoastal space. On securing the ICD greenish purulent discharge along with gush of air escaped from the chest, samples of which were sent for CBNAAT and culture which were negative for AFB. IV antibiotics were started. Approximately 600ml of purulent discharge was drained within 5 days. Air entry to the right side was improving but the patient

**Address for correspondence:** Dr. Akanksha D Srivastava, Assistant Professor, Department of Pediatrics, Career Institute of medical sciences, Lucknow, Uttar Pradesh, India  
E-mail: [akankshadshrivastava511@gmail.com](mailto:akankshadshrivastava511@gmail.com)

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continued to have air bubbles through the chest tube. A repeat chest x-ray was done in which a small amount of pneumothorax was remaining. HRCT [Figure 1-c] was planned which was suggestive of right sided pneumothorax and high-density fluid collection with pleural thickening along with fibro-cavitary lesions on the right side suggestive of acute infective pulmonary infection on the background of chronic etiology. Pus culture report was negative for AFB. CBNAAT report came back negative. ATT was started based on radiological evidence and clinical suspicion. The patient responded to ATT and oral steroids very well. He was monitored for the next few days till no further leak was noticed. He was discharged home on day 22 with a chest tube in situ. During follow-up visits patient continued taking ATT as per NTEP guidelines, CXRs have been near normal with no clinical distress.

pulmonary tuberculosis. Pulmonary tuberculosis (TB) has been described as a frequent cause of SSP in many studies.<sup>[2,3]</sup> Kwas et al. have also demonstrated SP secondary to TB in patients who were hospitalized in their department between 2005 and 2015.<sup>[4]</sup>

HRCT of our patient was suggestive of pneumothorax and high-density fluid collection with pleural thickening along with fibro-cavitary lesions on the right side suggestive of acute infective pulmonary infection on the background of chronic etiology. Lung cavities in adults with pulmonary TB may precipitate a spontaneous pneumothorax,<sup>[5]</sup> but lung cavities are uncommon in young children.<sup>[6]</sup> However, young children may experience progressive parenchymal caseation with cavitation if there is an uncontrolled progression of the primary Ghon focus or following complete bronchus obstruction with expansile caseating pneumonia distal to the obstruction.<sup>[7]</sup>

Pulmonary TB should be included in the differential diagnosis in a child who was admitted for a spontaneous pneumothorax because Tuberculosis is an immense health problem in developing countries like India.

## CONCLUSION

Secondary spontaneous pneumothorax (SSP) develops due to a lung pathology. Recurrence of post traumatic pneumothorax is rare, therefore in the case of recurrent pneumothorax possibility of underlying pulmonary tuberculosis should always be ruled out. SSP is a potentially life-threatening complication of MTB that typically responds well to pleural drainage and anti-tubercular drugs.

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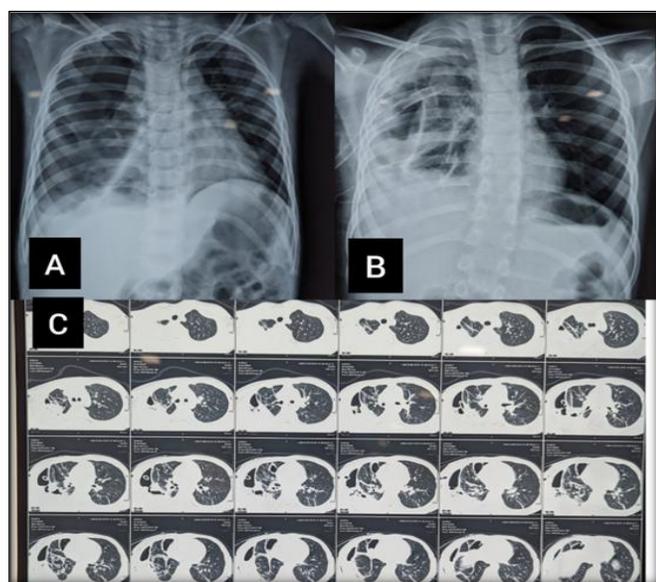
Nil.

## Conflicts of interest

There are no conflicts of interest.

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**Figure 1:** A- A gas-fluid level is noted with loss of silhouette with the dome of diaphragm. Visible visceral pleural edge is seen as a very thin, sharp white line no lung markings are seen peripheral to this line with collapsed right lung. B: ICD in situ on right side. C: Moderate hydropneumothorax with right lung consolidation and collapse with shift of mediastinum

## DISCUSSION

This case illustrates an unusual initial presentation of tuberculosis. Secondary SP (SSP) is associated with clinical or radiological evidence of significant lung disease. In our case diagnosis of pulmonary tuberculosis was initially missed. During first hospital visit patient was kept as a case of post traumatic hydropneumothorax as there was preceding history of trauma. Patient was managed with icd insertion and iv antibiotics. Patient improved, there was no evidence of pneumothorax on repeat chest x ray. Patient took discharge on persistent request later on again presented in opd after 10 days with complaint of chest pain. On further evaluation patient was diagnosed as a case of secondary spontaneous pneumothorax with underlying etiology as