

## Occult primary spontaneous pneumothorax

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### Abstract

We report a case of occult primary spontaneous pneumothorax in a 30 years-old woman. She developed symptoms and signs that were suggestive of pneumothorax. However, chest radiograph failed to reveal pneumothorax. Therefore, we proceeded with computed tomography (CT) thorax which revealed significantly moderate right pneumothorax. The diagnostic approach and the management of this case are discussed.

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*Keywords:* Spontaneous pneumothorax, occult pneumothorax, chest radiograph, CT thorax.

### Introduction

Primary spontaneous pneumothorax (PSP) is a pneumothorax occurring in patients without underlying lung disease and in the absence of provoking factors such as trauma, surgery or mechanical ventilation. In reality, most individuals with PSP have unrecognised lung disease, with the pneumothorax resulting from rupture of a subpleural bleb.<sup>1</sup>

Chest radiograph is a standard first line imaging modality to confirm pneumothorax. However, chest radiograph may fail to detect an occult pneumothorax.<sup>2</sup>

### Case report

The patient is a para one, 30 years-old woman, who underwent emergency lower segment caesarean section under spinal anaesthesia, one week prior to current admission. She presented with fever and abdominal pain. She was diagnosed with puerperal sepsis and given intravenous ceftriaxone, metronidazole and gentamicin. Her urine culture came back 4 days later, showing growth of *Escherichia coli* (ESBL positive). Her antibiotics were then changed to intravenous meropenem. She improved with the treatment.

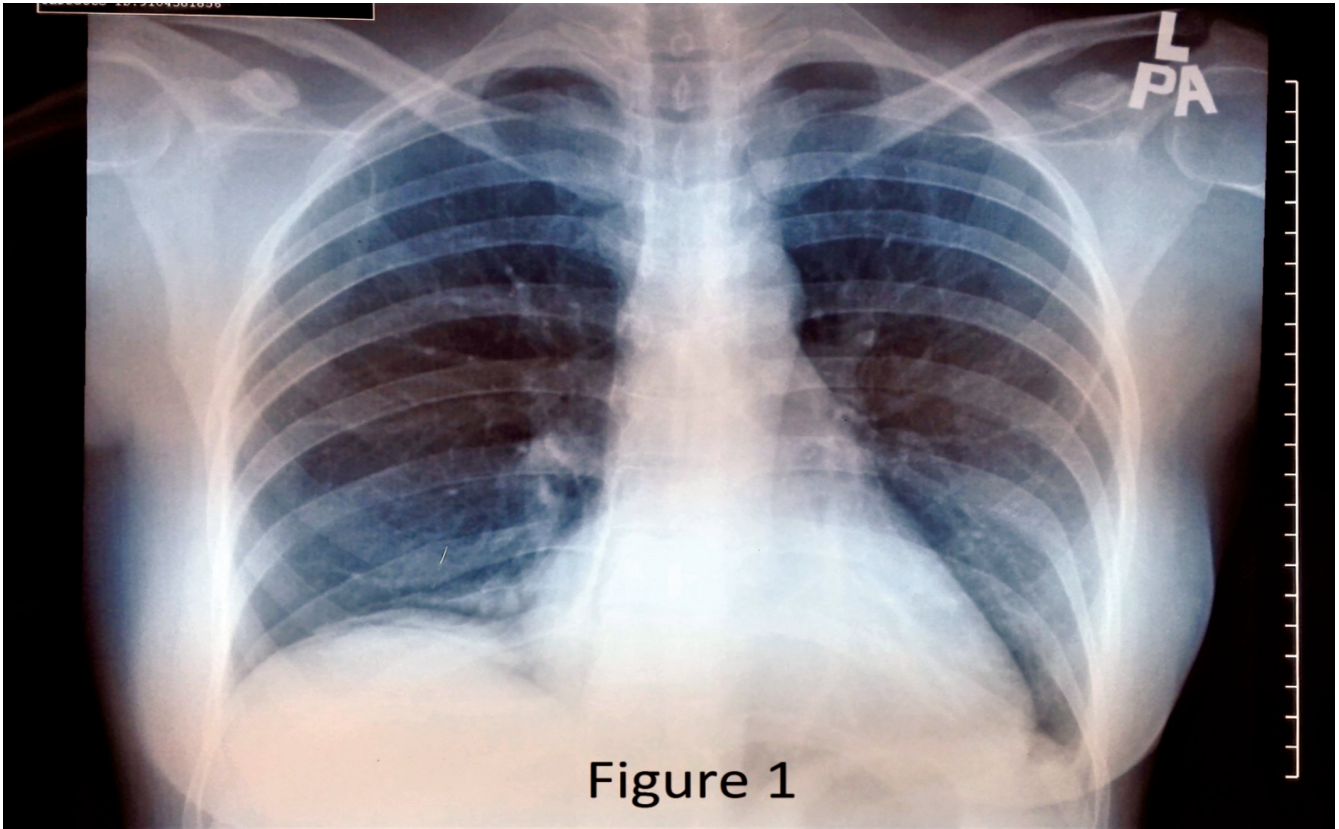
One week after admission, she developed sudden onset of breathlessness, associated with right sided pleuritic chest pain. On examination, she was mildly tachypnoeic. Her breath sounds were reduced over the right lower zone with increased resonance on percussion. She was hypoxic on room air. A pneumothorax was suspected.

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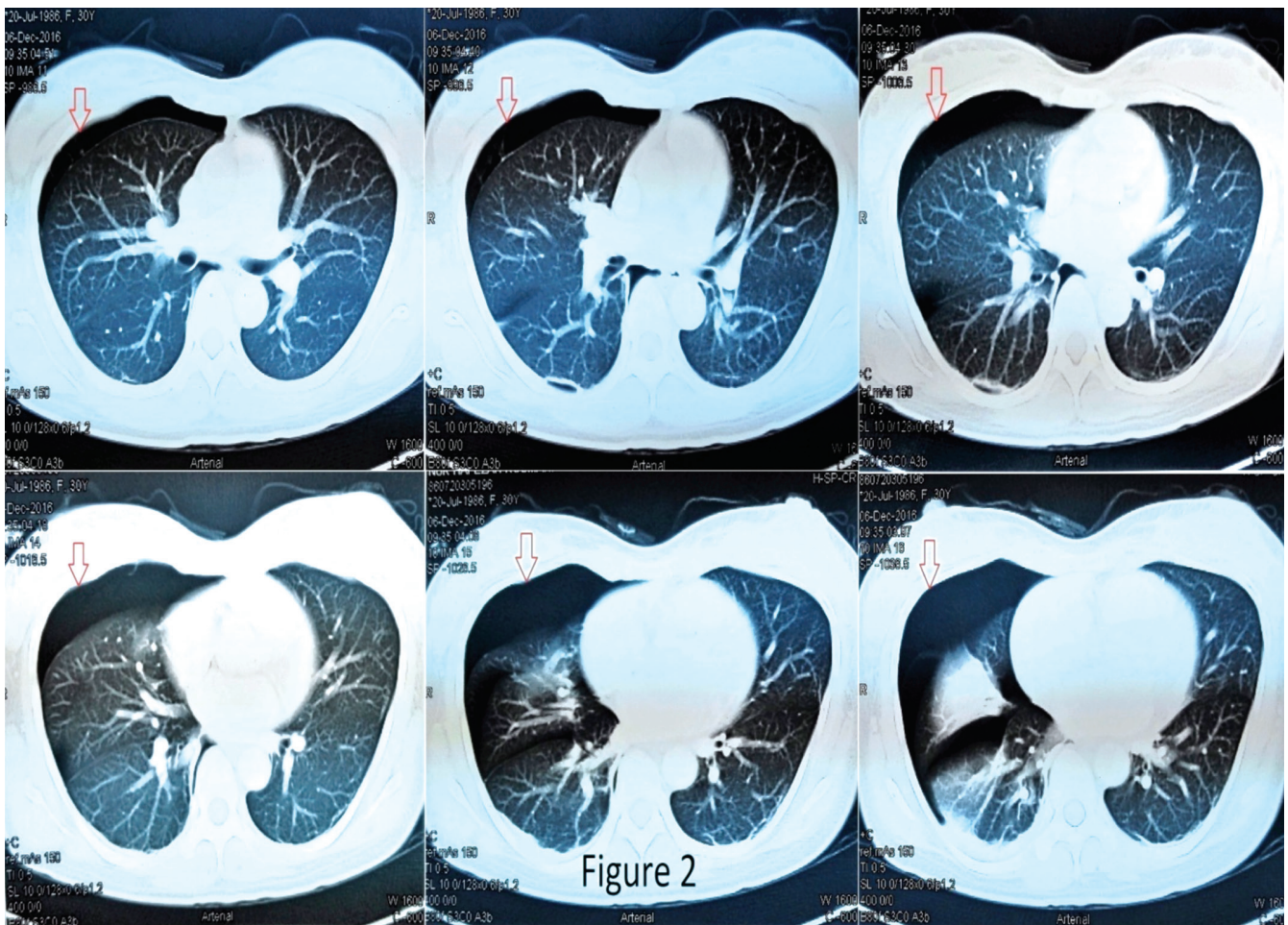
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**Figure 1:** Chest radiograph was surprisingly unremarkable.

Therefore, we proceeded with a CT thorax on the same day, which revealed moderate right pneumothorax in upper, mid and lower zones (Figure 2).



**Figure 2:** CT thorax revealing moderate right pneumothorax in upper, mid and lower zones.

The patient was offered an ultrasound guided chest tube insertion. However, she was not keen. Therefore, she was observed in the ward with supplemental oxygen and taught deep breathing exercises. She improved clinically with oxygen supplement. She was discharged after completing the antibiotic course. A follow up CT thorax 2 weeks after discharge showed resolution of pneumothorax.

### Discussion

A primary spontaneous pneumothorax is a pneumothorax that occurs without a precipitating cause in a person who does not have known lung disease. The incidence in women ranges from 1.2 per 100,000 populations per year in the United States to 15.4 per 100,000 populations per year in the United Kingdom.<sup>1</sup>

Chest radiograph remain the first line imaging modality used to diagnose pneumothorax. However, chest radiograph may fail to detect pneumothorax in an occult pneumothorax which is not visible on a plain chest radiograph but seen on CT scan.<sup>2</sup>

CT scan is the most accurate imaging modality for the detection of pneumothorax. Even minimal amounts of intrapleural gas, atypical collections of pleural gas, and loculated pneumothoraces can be identified by CT.<sup>3</sup>

The patient in this case had clinical features that are highly suggestive of pneumothorax. However, the chest radiograph is not consistent with the clinical findings.

Therefore, the treating physician decided for a more superior imaging modality to confirm the diagnosis. Studies had proven that CT scan is a superior method to detect pneumothorax. Therefore, in cases where clinical suspicion of pneumothorax is high, but not shown on chest radiograph, CT scan should be considered.

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