

# The unexpandable lung

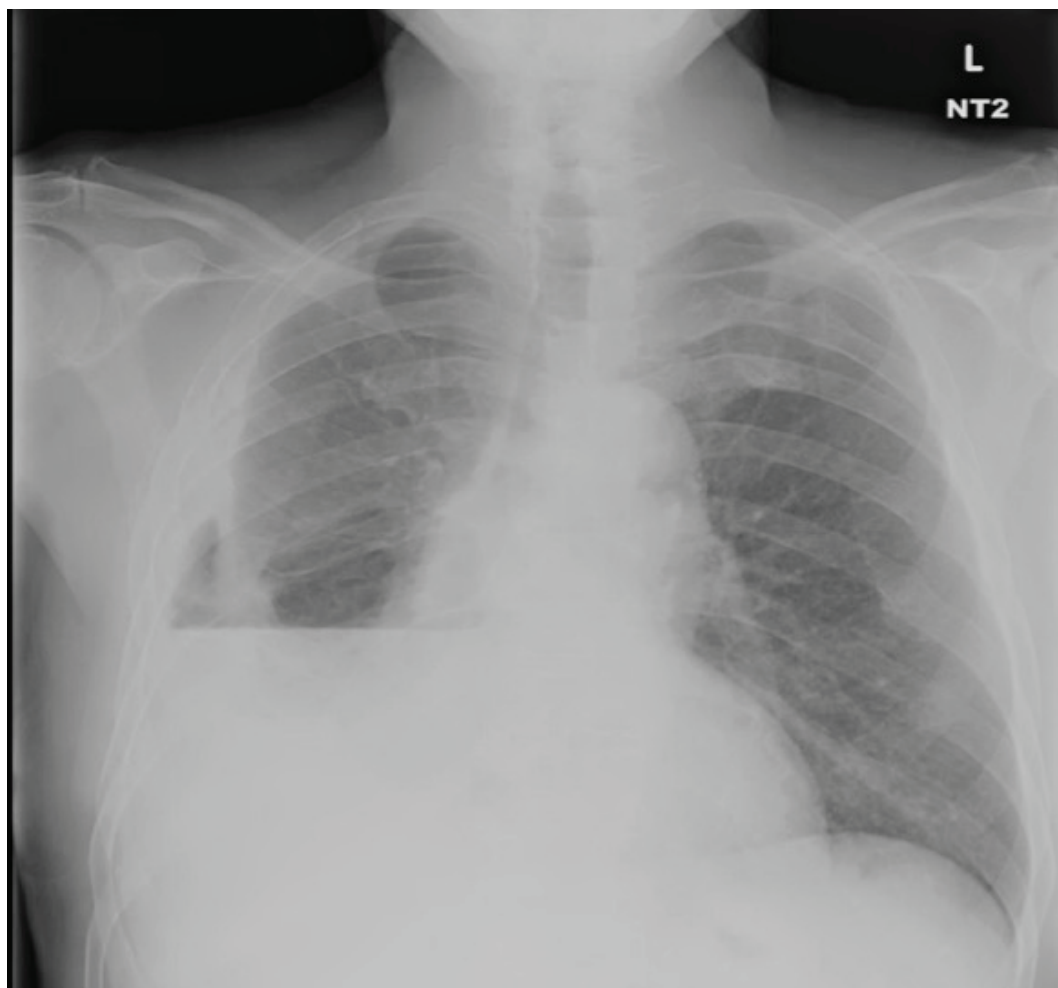
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## Case report

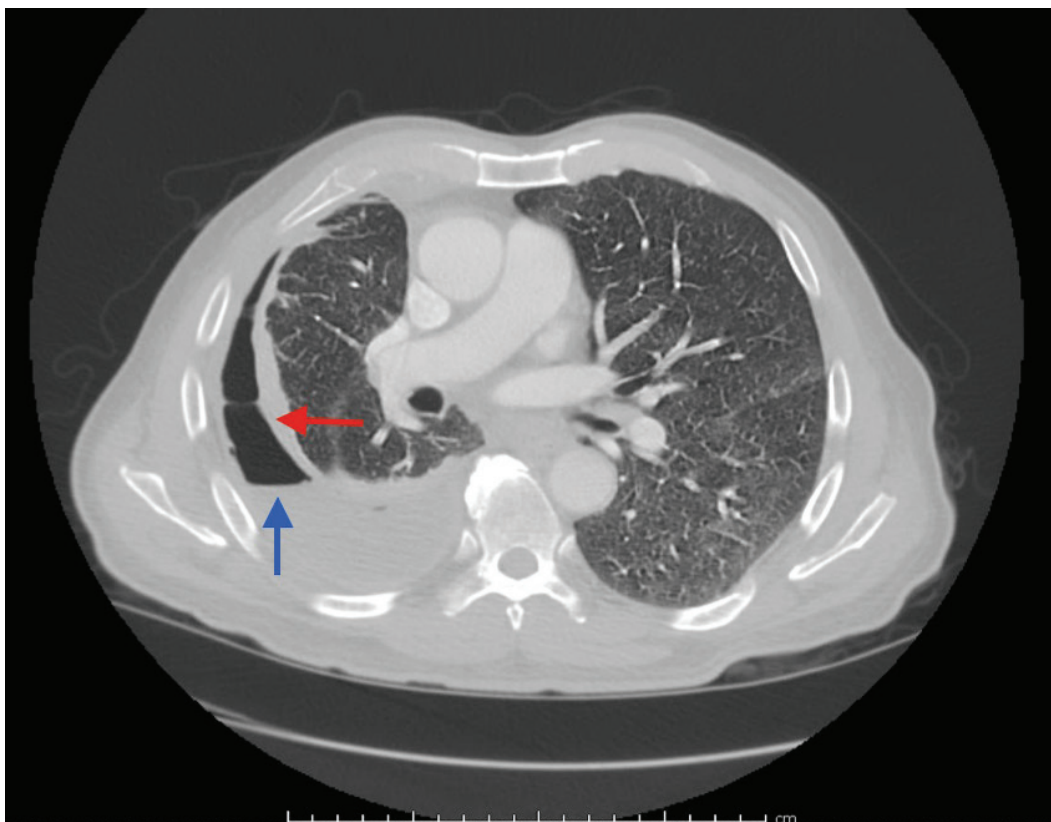
**A** 74-year-old man presented with complaints of shortness of breath and pleuritic chest pain. Chest X-ray revealed R sided pleural effusion, for which thoracentesis was performed. Thoracentesis revealed fluid to be an exudate (total protein 6g/dL, LDH 361U/L), which was lymphocyte predominant (87% on differential) and had no malignant cells on cytologic evaluation. Post-thoracentesis chest X-ray revealed a right hydropneumothorax,

(Figure 1) and a subsequent chest CT scan (Figure 2) demonstrated an air-fluid level as well as pleural thickening. Hence, a diagnosis of lung entrapment was made. The patient underwent decortication, at which time *Mycobacterium tuberculosis* was isolated from the pleural fluid, with complete expansion of the right lung. Anti-TB treatment with Rifampin, Isoniazid, Pyrazinamide and Ethambutol was initiated and the patient at follow-up in two months is doing well.

**Figure 1:** Chest X-ray showing R hydropneumothorax, post thoracentesis.



**Figure 2:** Chest CT scan showing air fluid level (blue arrow) as well as pleural thickening (red arrow) consistent with lung entrapment.



Unexpandable lung is the inability of the lung to expand to the chest wall allowing for normal visceral and parietal pleural apposition. The two types of pleural diseases that result in unexpanded lung are trapped lung and lung entrapment. In lung entrapment, the lung cannot expand fully because of an active disease such as malignancy or infection while in trapped lung—the lung cannot expand fully because of a remote inflammatory process that has left behind a mature fibrous membrane.<sup>1</sup> Heidecker et al demonstrated that the unexpandable lung is the most common

frequent cause of pneumothorax (pneumothorax ex vacuo) after thoracentesis, which is believed to be due to parenchymal-pleural fistulas that develop as a consequence of the reduced pleural pressure.<sup>2</sup> In lung entrapment, insertion of a chest drain and treatment of the underlying disease is necessary, as otherwise it would progress to trapped lung.<sup>3</sup> In our case, the patient had persistent symptoms in spite of chest tube placement—hence, decortication was performed and was initiated on anti-TB treatment.

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**Competing interests:**

Nil.

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