

Secondary spontaneous pneumothorax complicating miliary tuberculosis in a young woman

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DESCRIPTION

A 17-year-old girl from a rural part of Uttar Pradesh in India presented with high-grade fever of 2-month duration along with fatigability and weight loss. She had no symptoms of cough, breathlessness, chest pain, headache, backache or multiple swellings over the body. The patient was asymptomatic earlier with no history of chronic cough, fever or haemoptysis. She does have history of contact with her elder brother currently suffering from active pulmonary tuberculosis infection and on antitubercular medications. On examination, the patient was febrile with oral temperature fluctuating from 102°F to 103°F, pulse rate 106/min, blood pressure 110/60 mm Hg and respiratory rate 20 breaths/min with 95% oxygen saturation on room air. On systemic examination, lymphadenopathy or any organomegaly was absent. During the workup for her fever, white cell counts were 11 200/ μ L with 54% lymphocytes and 46% polymorphs. Chest X-ray of the patient showed multiple pattern of diffuse, randomly distributed, well-defined small 1–2 mm opacities throughout lung (figure 1). Antitubercular treatment started following which fever subsided, but she again visited our emergency department after 10 days with sudden breathlessness, tachypnoea and low oxygen saturation. Her blood pressure was 90/50 mm Hg, heart rate 136 beats per minute and was severely hypoxic (oxygen saturation 43%) despite oxygen inhalation. Examination of the patient showed deviation of trachea and signs of



Figure 2 Chest X-ray posteroanterior view showing left-sided pneumothorax with light index 72.54% and shifting of mediastinum to opposite side. The light index is calculated as the size of the pneumothorax (in %)= $(1 - D_L^3/D_{HT}^3) \times 100$, where D_L is the diameter of the collapsed lung measured at the hilar level and D_{HT} is the internal diameter of the hemithorax on collapsed side measured at the hilar level.

mediastinal shift to the right side. Chest X-ray this time showed left-sided pneumothorax with light index 72.54% and shifting of mediastinum to opposite side suggestive of large pneumothorax (figure 2). Immediate tube thoracostomy with a chest tube (24 French) attached to a water-seal device relieved symptoms of the patient drastically.

A secondary spontaneous pneumothorax (SSP) is defined as a pneumothorax that occurs as a complication of underlying lung disease.¹ Nearly every lung disease can be complicated by SSP, although the most commonly associated diseases are chronic obstructive pulmonary disease, cystic fibrosis, primary or metastatic lung malignancy and necrotising pneumonia (eg, bacterial or fungal pneumonia, pneumocystis pneumonia and tuberculosis).² Although miliary pattern and pneumothorax are rare radiological features in pulmonary tuberculosis, their incidences are nearly 1.3% and 1.5%, respectively.³ Pneumothorax is a rare and potentially life-threatening complication of miliary tuberculosis. The pathogenesis of pneumothorax in miliary tuberculosis is unclear, but the following mechanisms can be considered—caseation or necrosis of subpleural miliary nodules and their subsequent rupture can cause pneumothorax.



Figure 1 Chest X-ray posteroanterior view showing multiple miliary shadows.



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To cite: Singh AS, Atam V, Das L. *BMJ Case Rep*. Published online: [please include Day Month Year] doi:10.1136/bcr-2013-201109

Learning points

- ▶ Miliary tuberculosis is a disseminated form of tuberculosis with distinctive pattern in chest X-rays.
- ▶ Miliary tuberculosis of lungs can lead to devastating complications like pneumothorax.
- ▶ Secondary spontaneous pneumothorax occurs in patients with already compromised lung function; so often presents as a potentially life-threatening disease, requiring immediate action.

Competing interests None.

Patient consent Obtained.

Provenance and peer review Not commissioned; externally peer reviewed.

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