

## Case report

# Bilateral recurrent pneumothorax: a rare complication of miliary tuberculosis

Sanjeev Tandon, K.B. Gupta

## Abstrak

*Sebuah kasus pneumotoraks bilateral berulang pada seorang penderita tuberkulosis milier telah dilaporkan. Bulla multipel yang terlihat pada CT scan thoraks diduga merupakan penyebab pneumotoraks berulang ini.*

## Abstract

*A patient with miliary tuberculosis having bilateral recurrent pneumothorax reported in which multiple bullae as revealed on CT scan thorax, were the probable cause for recurrent pneumothorax.*

**Keywords:** pneumothorax, miliary tuberculosis

Pneumothorax as a complication of adult cavitary pulmonary tuberculosis is well known, however its occurrence as a complication of miliary tuberculosis is extremely rare.<sup>1</sup> The purpose of this report is to describe a case of acute miliary tuberculosis complicated by bilateral and recurrent pneumothorax.

## CASE REPORT

A 24 year old non smoker male was admitted with complaints of cough, fever and anorexia for 3 months. Skiagram chest showed bilateral miliary shadows. Sputum smear was repeatedly negative for acid fast bacilli by direct and concentration smears but subsequent culture of sputum on the Lowenstein-Jensen medium showed *Mycobacterium tuberculosis*. Tuberculin test was positive (induration 24mm). There was no history of prior illness or hospitalization, and no known exposure to tuberculosis.

On admission, physical examination revealed a temperature of 39.2°C, regular pulse of 120 beats per min, blood pressure 120/80 mmHg, and a respiratory rate of 20 breaths per min. Laboratory studies revealed a mild hypochromic anaemia with a hemoglobin of 9.2

gm%. The white blood cell count was 9500 per mm<sup>3</sup>, with a differential of 75 percent polymorphonuclear leukocytes. He was treated daily with isoniazid (300 mg), ethambutol (800 mg), rifampicin (450 mg), pyrazimide (1500 mg) and streptomycin (1 g). On the second hospital day the patient developed sudden onset of breathlessness and pain in the right side of chest. Chest examination revealed a grossly shifted trachea to left side with diminished chest movements on the right side and hyperresonant lung field on percussion of the right side. Breath sound were also diminished on the right side. Skiagram chest revealed bilateral miliary shadows with a right sided pneumothorax. Intercostal tube drainage connected to an underwater seal was immediately instituted, with almost complete expansion of the right lung within 48 hours.

On the eight hospital day, the patient again experienced dyspnea and pain on the left side of the chest, a left pneumothorax was evident on the chest roentgenogram, and was again treated with intercostal drainage. The lung expanded completely within 24 hours (Figure 1). On the twelfth hospital day the right pneumothorax recurred. The chest tube was again inserted on the right side and the right lung expanded fully. On the sixteenth hospital day, the left pneumothorax recurred. The intercostal tube was again inserted on the left side and the left lung expanded. Since the patient was developing recurrent pneumothorax on both the sides, he was advised for CT scan thorax which revealed presence of

*Departments of Chest & Tuberculosis, Pt. B.D. Sharma Post Graduate Institute, of Medical Sciences, Rohtak, Haryana, India*

bilateral bullae with diffuse miliary mottling (Figure 2). During the next 15 days, the underlying lung fields showed remarkable clearing of the interstitial and miliary nodular disease. After 40 days in the hospital, the patient was asymptomatic and was discharged on antitubercular treatment.

## DISCUSSION

Pneumothorax is an extremely rare complication encountered in cases of miliary tuberculosis, only few cases have been reported in the literature. Peiken et al reported a case of acute miliary tuberculosis complicated by bilateral pneumothoraces. They reviewed the world literature and found only seven other cases of this complication and pneumothorax was bilateral in only two of them.<sup>1</sup> Narang et al reported five cases of acute miliary tuberculosis, four were complicated by pneumothoraces and one by pneumomediastinum. In 2 cases pneumothorax occurred on the left side while in 2 it was bilateral.<sup>2</sup> We have reported this case because of the rarity of this complication, with only four cases of bilateral pneumothorax reported earlier, in which recurrent bilateral pneumothorax was seen in only two cases.

The pathogenesis of pneumothorax in miliary tuberculosis is not as readily explained as in adult pulmonary tuberculosis, in which rupture of the cavities through the visceral pleura is understood to be the cause. The mechanism in acute miliary tuberculosis is, however not clear and there are several possibilities. One mechanism suggested was an initial pneumo-

mediastinum with leakage of air through the mediastinal pleural causing pneumothorax.<sup>1,2</sup> This may not be true in all patients with miliary tuberculosis and pneumothorax, as in many no concurrent pneumomediastinum was seen and in many cases of pneumomediastinum complicating miliary tuberculosis there was no pneumothorax.<sup>3</sup> Another possible mechanism might be caseation of necrosis of subpleural miliary nodule rupturing through pleura. Alternatively, bullous lesions form near miliary tubercles which rupture to produce a pneumothorax.<sup>4,5</sup> The later mechanism may have been responsible for bilateral pneumothorax in our patient of acute miliary tuberculosis, as bilateral multiple bullae were revealed on CT thorax, and hence the pneumothorax was bilateral and recurrent.

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