

Community Acquired Miliary Pneumonia Mimicking As Miliary Tuberculosis

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Citation

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Abstract

In India, miliary shadows are usually taken synonymous to miliary tuberculosis. Here we report a case of young male having cough, fever and dyspnoea along with miliary shadows on chest radiograph. He was misdiagnosed as a case of miliary tuberculosis and was found to have miliary pneumonia.

INTRODUCTION

The pathology of pneumonia manifests as four general patterns: lobar pneumonia, bronchopneumonia, interstitial pneumonia and miliary pneumonia. The original description of miliary pneumonia was based on the resemblance of the diffusely distributed 2 to 3-mm lesions of hematogenous tuberculosis to millets seeds. The current concept of miliary pneumonia is based on its numerous discrete lesions resulting from the spread of the pathogen to the lungs via the blood-stream. Community acquired pneumonia (CAP) presenting as miliary pneumonia has never been reported.

CASE SUMMARY

A 14 year male, nonsmoker patient was admitted in emergency department with the chief complaints of high grade fever off and on and dry cough and breathlessness for last 5 days. He had no history of chest pain, haemoptysis, and anorexia. On chest x-ray PA view he was having bilateral miliary shadow. He was diagnosed as a case of miliary tuberculosis by a local practitioner for which he was taking antituberculosis treatment (ATT) for last two days. He developed gastric intolerance for ATT after which he was referred to us. He was having no history of contact to a tuberculosis patient. His medical history was otherwise unremarkable.

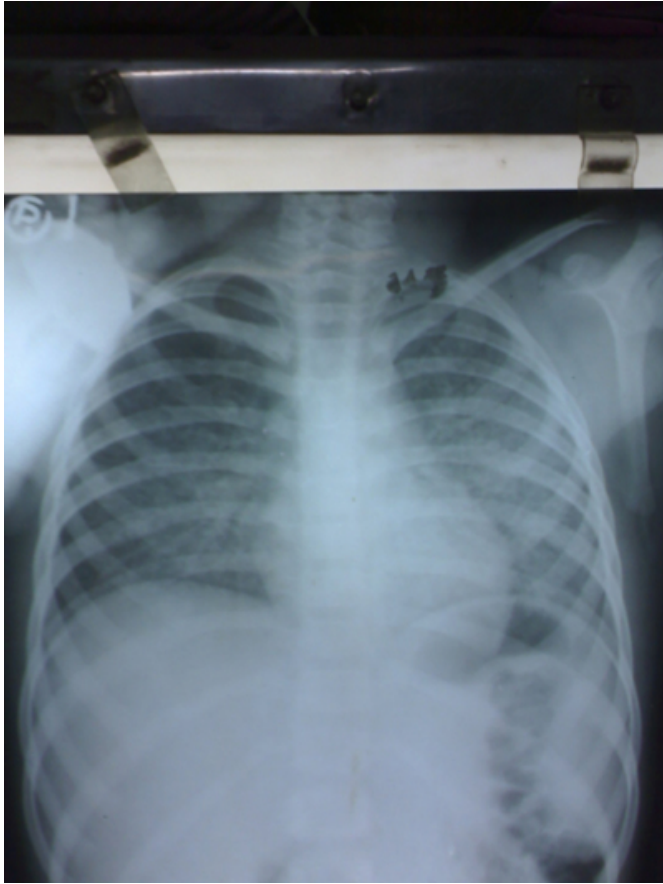
On general physical examination, he was conscious, febrile (temperature 102 ° F) and well nourished with a pulse rate of 116/min, respiratory rate of 32/min, and a right arm supine blood pressure of 102/60 mmHg. Oxygen Saturation using pulse oximetry revealed hypoxemia (SaO₂ 84%). There was no cervical lymphadenopathy, cyanosis or clubbing. There

were no scars or sinuses in the neck. Chest examination was unremarkable on inspection, palpation and percussion. On auscultation bilateral coarse crepts were audible. Examination of other systems was unremarkable.

Routine investigation showed; hemoglobin: 11 gm%, total leukocyte count: 16700/mm³, differential count: neutrophils 78%, lymphocyte 20%, eosinophil 2% (absolute eosinophils count was 334), platelets count: 2.8 lac/mm³, C-reactive protein: 72mg/l and Erythrocyte sedimentation rate: 17 mm/hr. He was negative for human immunodeficiency virus. Rest of the biochemical investigations were within normal limit. Mantoux test showed indurations of 3mm at 72 hours. Repeat chest x-ray also revealed the miliary shadows (fig.1).

Figure 1

Figure 1: Chest radiograph showing miliary shadow



Sputum examination could not be done because of nonproductive cough. Bronchoalveolar lavage (BAL) obtained via flexible fiber-optic bronchoscopy was sent for acid fast bacilli (AFB) smear, gram stain and culture sensitivity for pyogenic. BAL fluid was negative for AFB smear. Gram stain of BAL fluid revealed Gram positive diplococci. Culture of BAL fluid was also positive for *Streptococcus pneumoniae* which was sensitive to amoxicillin. Blood culture was also positive for *S. pneumoniae*. Thus he was diagnosed as a case of community acquired miliary pneumonia. He was given a course of co-amoxiclav 1.2 g tds Intravenous for two days followed by oral co-amoxiclav 625 mg tds for twelve days. Patient improved clinically as well as radiologically after 14 days of treatment (fig.2).

Figure 2

Figure 2: Chest radiograph showing the resolution of miliary shadows after fourteen days of treatment.



DISCUSSION

Community acquired pneumonia has been defined¹ as symptoms and signs consistent with an acute lower respiratory tract infection associated with new radiographic shadowing for which there is no other explanation (e.g. pulmonary oedema or infarction). *Streptococcus pneumoniae* is the leading cause of CAP^{2,3}. The usual clinical presentation of acute pneumococcal pneumonia is abrupt, with fever, shaking chills, cough, slight expectoration, and intense pleural pain. The temperature may be as high as 41 °C. Cough may be nonproductive at first but soon produces bloody, rusty or greenish material. Typical findings on physical examination include decreased breath sounds, crackles, and impaired percussion over the site of the pneumonia. Bronchial breathing, bronchophony, and whispering pectoriloquy are audible on auscultation in a small number of patients.

The usual standard for the diagnosis of pneumonia is chest radiography⁴. The characteristic radiographic pattern of acute pneumococcal pneumonia consists of homogenous, nonsegmental consolidation involving one lobe. In one study, 67% of patients with pneumococcal pneumonia had the typical pattern, 20% had patchy areas of consolidation and 13% had mixed air-space and interstitial opacities⁵. Our patient had the miliary shadows on chest radiograph which has not been reported till now. A white cell count of

15000/mm³ strongly suggests a bacterial (particularly pneumococcal) aetiology, although lower counts do not exclude a bacterial cause₆. Raised levels of C-reactive protein are a relatively more sensitive marker of pneumonia than an increased temperature or raised white cell count₇. One study₇ found that all patients with CAP had levels above 50 mg/l and 75% of patients had level above 100 mg/l (in our case also CRP was 72 mg/l). Although the diagnosis of acute pneumococcal pneumonia may be suspected from the clinical picture and the radiographic pattern, isolation of the organism is necessary for a definitive diagnosis.

Presence of large numbers of Gram positive diplococci in purulent samples from patients with CAP can indicate pneumococcal pneumonia₈. However the sensitivity of a good Gram stain for the diagnosis of pneumococcal pneumonia is only in the order of 15% and sputum samples are often not obtained in a timely fashion₉. Bronchoalveolar lavage obtained via Fibre-optic bronchoscopy is a useful and safe alternative for sampling cellular and humoral materials from the lower respiratory tract. Our patient was also having the nonproductive cough so we obtained the BAL fluid via flexible fiber-optic bronchoscopy. Reported incidence of negative sputum culture in patients with pneumococcal pneumonia proved by positive blood culture is as high as 45%₁₀. Radiographic changes of CAP resolve relatively slowly and lag behind clinical recovery. Complete recovery of chest radiographic changes occurred at 2 weeks after initial presentation in 51% of cases, by 4 weeks in 64% and at 6 weeks in 73%₁₁.

In a developing country like India where the prevalence of tuberculosis is high, miliary shadows are usually taken synonymous to miliary tuberculosis (as happened in our case). Whereas in developed country, the continuing decline in tuberculosis and the consequent decreasing experience and awareness of tuberculosis has led to tuberculosis increasingly being diagnosed after rather than before death. If the patient is having high grade fever of abrupt onset

without anorexia and weight loss, with no history of contact to tubercular patient, other diagnosis must be taken into consideration. If reasonable doubt exists, then the patient should be treated for both conditions until a firm diagnosis can be reached. Non-mycobacterial pneumonia clears much more rapidly than miliary tuberculosis.

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