



Case Report

Round opacity as a presentation of pneumocystis jirovecii pneumonia in an HIV-infected patient



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ABSTRACT

We present the case of a human immunodeficiency virus (HIV)-infected patient who arrived at our emergency department with fever, headache and exertional dyspnea. Throughout their stay, a chest x-ray was taken and a rounded opacity in his left lung was observed. CT images showed same abnormality and also ground glass opacities were seen. Symptoms and images strongly suggested a pulmonary infection due to pneumocystis jirovecii, however a presence of a round lesion should always lead to neoplasia being suspected. We empirically started treatment based on trimethoprim and sulfamethoxazole. Once available, flexible bronchoscopy and bronchoalveolar lavage was performed and stained preparations from his respiratory specimens confirmed the diagnosis of pulmonary pneumocystis infection. Finally, after 4 days of antibiotic therapy, an important clinical improvement was documented; a new chest x-ray was performed and the previous rounded opacity was absent. This finding strongly suggested a case of round pneumonia.

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Case report

A 40-year-old male presented to the emergency department with complaints of fatigue, fever and intermittent episodes of mild headache for the last six weeks. His medical history was relevant for HIV infection diagnosed five years ago with lack of adherence to the highly effective antiretroviral therapy. On interrogation, he referred to the presence of exertion dyspnea and dry cough for the last four weeks. On initial examination temperature was 104.0 °F; blood pressure 70/40 mm Hg; heart rate 138 bpm and respiratory rate was 30 bpm; with an oxygen saturation of 88% at room air. There were no other relevant findings on examination. His complete blood count included a hemoglobin concentration of 13.3 g/dL, a decreased white blood cell count with neutrophil count of $10.9 \times 10^9/L$ and $8.88 \times 10^9/L$, respectively; platelet count of $151.0 \times 10^9/L$, lactic dehydrogenase 422 UI/L, C-reactive protein of 17.4 mg/L, and sodium 127.1 mmol/L. There were no abnormalities in the cerebrospinal fluid analysis. A chest x-ray and CT were performed (Fig. 1A and B) and showed a focal rounded opacification at the lower lobe of the left lung and ground glass attenuation in both lungs. We started empirical treatment with 20 mg/kg/day of trimethoprim and sulfamethoxazole divided into three doses. Flexible bronchoscopy and bronchoalveolar lavage was performed, and stained preparations from his respiratory specimens confirmed the diagnosis of pulmonary pneumocystis infection.

After four days of treatment, the patient presented good clinical evolution and improvement of his symptoms. Oxygen saturation of rise to 98% at room air. At this day new chest x-ray and CT scan (Fig. 2A and B) were performed and the round lesion was not present.

Round pneumonia is a radiological manifestation characterized by a rounded opacity on chest x-ray and it was first reported in 1964 by Greenfield and Gyepes [1]. This pneumonia variant occurs more often in children as they have poorly developed pathways of collateral ventilation, more closely apposed lung connective tissue septa and smaller alveoli, when compared to adults [2]. These factors combine to form more compact areas of infiltrate, which can appear as round lesions on chest images [3]. Remarkably, only 1% of the cases of round pneumonia occur in adults [4]. On CT scans we usually find round heterogeneous lesions with spicules, satellite lesions and/or air bronchograms. However, it appears that only satellite lesions are useful for diagnosing round pneumonia [5].

Most common causes of this finding are infectious and neoplastic. For the first case it is usually attributed to *Streptococcus pneumoniae* [4], *Klebsiella pneumoniae* [6] or *Haemophilus influenzae* [7]; however, the etiology is not determined in almost 75% of the cases [8,9], but clinical and radiographic resolution after appropriate antibiotic therapy is the rule. The main differential diagnosis of this pneumonia presentation is primary lung carcinoma [10]. In our case this was ruled-out after lesion's disappearance after antibiotic therapy.

In conclusion, this variant has been scarcely documented in patients with more than 18 years of age, and to the best of our knowledge, this is the first reported case of round pneumonia associated to *P. jirovecii* in an

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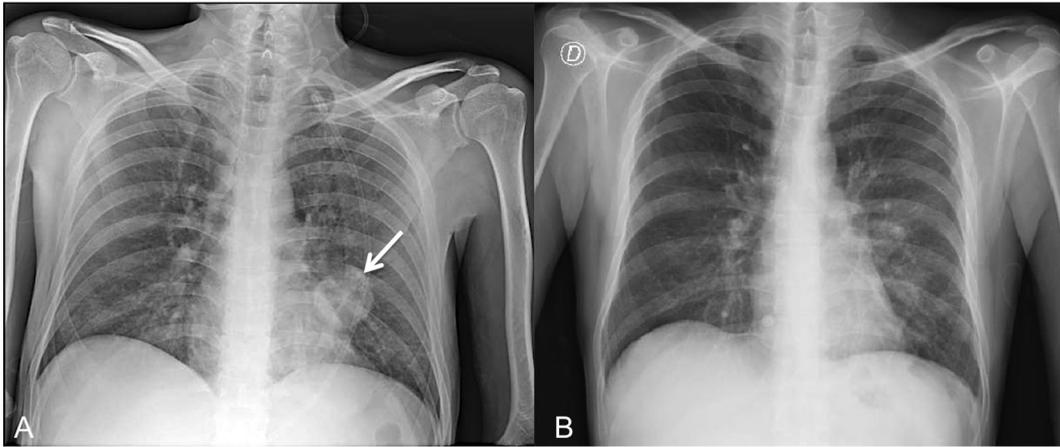


Fig. 1. A. Well circumscribed opacity in left lung of chest x-ray in an HIV-infected adult. B. Rounded opacity disappeared after one week of treatment with trimethoprim and sulfamethoxazole.

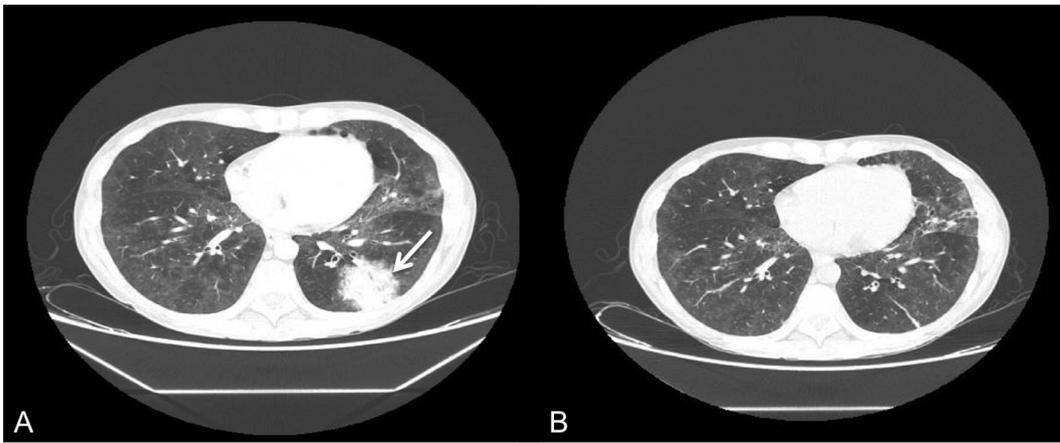


Fig. 2. A. Focal rounded opacity at the lower lobe of the left lung and ground glass attenuation was seen in both lungs. B. The opacity disappeared completely after treatment at control 4 days later.

HIV-infected adult. Remarkably, early treatment with trimethoprim and sulfamethoxazole led to clinical and radiographic improvement after four days at emergency department.

Declaration of interest

None.

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