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Visual Diagnosis in Emergency Medicine

FOCAL MASS-LIKE OPACITY ON CHEST RADIOGRAPHY: ROUND PNEUMONIA

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CASE REPORT

A 26-year-old woman presented to the Emergency Department (ED) with a complaint of fever and myalgia for 2 days. There was no history of cough or sputum production. She had no prior surgical or medical problems. Her blood pressure was 108/70 mm Hg, pulse rate 156 beats/min, temperature 39.7°C, respiratory rate 16 breaths/min, and oxygen saturation 96% on room air. The physical examination was also significant for mild decreased breath sounds over the right mid chest; the remainder of the physical examination was unremarkable. Intravenous access was obtained, and laboratory tests were performed. The electrolytes, glucose, renal function, and liver function tests were all within normal limits. The white blood cell count was 6600/cc3. A chest radiograph revealed a spherical pattern with a homogeneous 4.5 × 4.5 cm diameter opacification on the right middle lobe (Figure 1). A computed axial tomography (CT) scan of the chest revealed well-marginated air space consolidation in the right middle lobe, consistent with pneumonia (Figure 2). Empiric antibiotic treatment was initiated according to current recommendations, using a macrolide, in this case, clarithromycin 500 mg by mouth twice a day for 10 days. On ambulatory follow-up after 10 days, the patient was symptom-free.

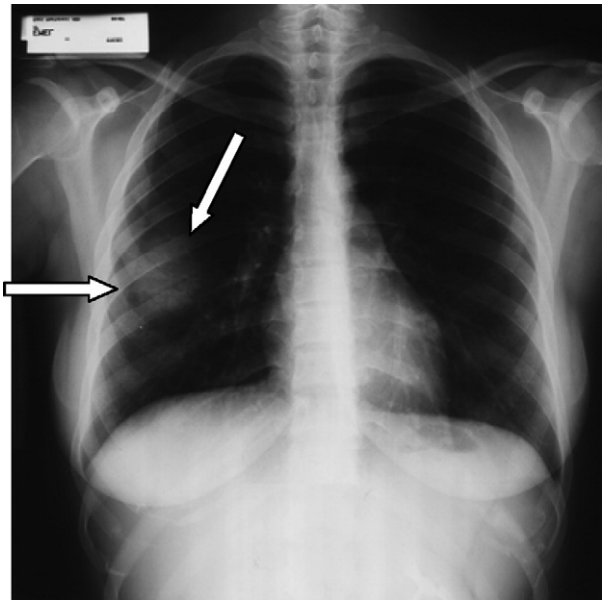


Figure 1. Posteroanterior chest radiograph. Two white arrows point to the borders of the opacification.

DISCUSSION

Identification of a specific etiology of pneumonia is extremely difficult within the time frame of an ED visit. Even after a thorough inpatient evaluation, many patients with pneumonia will never have a specific pathogen identified. Once pneumonia is diagnosed, the priorities in the ED are to provide appropriate respiratory support, assess the severity of disease, recognize indications for hospitalization, and initiate appropriate empiric antibiotic therapy based on the most likely pathogens (1).

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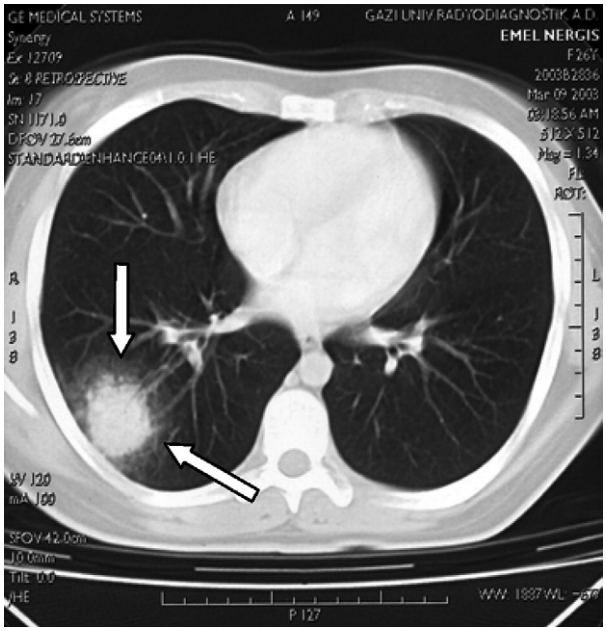


Figure 2. Computed tomography of chest. Two white arrows point to the borders of the opacification.

Round pneumonia is a well-recognized entity in children, but it has been reported rarely in adults (2). In addition, it constitutes an atypical radiologic presentation of pulmonary infection (3). The pathogenesis of round pneumonia is unknown. In children younger than 8 years of age in whom the collateral pathways of circulation are not well developed, pneumonia can have a very round appearance and mimic a mass (4). It is hypothesized to be an early manifestation of the disease resulting from an infectious focus that has spread centrifugally, either by traveling through the pores of Kohn and Lambert canals or by destroying the walls of the surrounding acini in adults (5,6). Lesions of round pneumonia are not necessarily round; oval lesions can also be seen. The margins may be smooth on chest radiographs, sometimes with lobulations, or they can be irregular or spiculated (5). A number of entities might feature the characteristic of a round opacity in the lung: bacterial pneumonia, septic emboli, granulomatous infections, malformations, neoplasms, vascular abnormalities, round atelectasis, focal organizing pneumonia, immune system-related disorders such as rheumatoid nodules, Wegener's granulomatosis, and severe acute respiratory syndrome (7–9).

The clinical symptoms of round pneumonia can be mild, mimicking a viral syndrome or bronchitis. Some patients with round pneumonia will have no clinical symptoms at initial presentation, although careful clinical questioning might elicit a history of cough and chills 1 week or more before presentation. Awareness of this disease is important because a history of cough or fever may be absent or temporally remote at the time of presentation, making the diagnosis difficult (5).

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