

CASE REPORT

Pediatric Round Pneumonia



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“Round pneumonia” or “spherical pneumonia” is a well-characterized clinical entity that seems to be less addressed by pediatricians in Taiwan. We herein report the case of a 7-year-old boy who presented with prolonged fever, cough, and chest X-rays showing a well-demarcated round mass measuring 5.9 × 5.6 × 4.3 cm in the left lower lung field, findings which were typical for round pneumonia. The urinary pneumococcal antigen test was positive, and serum anti-*Mycoplasma pneumoniae* antibody titer measurement using a microparticle agglutination method was 1:160 (+). After oral administration of antibiotics including azithromycin and amoxicillin/clavulanate, which was subsequently replaced by ceftibuten due to moderate diarrhea, the fever subsided 2 days later and the round patch had completely resolved on the 18th day after the diagnosis. Recent evidence suggests treating classical round pneumonia with antibiotics first and waiving unwarranted advanced imaging studies, while alternative etiologies such as abscesses, tuberculosis, nonbacterial infections, congenital malformations, or neoplasms should still be considered in patients with atypical features or poor treatment response.

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1. Introduction

Pneumonia is a common disease in children that has caused much burden to patients, families, and health-care systems. In Taiwan, the average annual incidence of patients hospitalized with pneumonia was 1240 with 6.7 mortalities per 100,000 children younger than 18 years of age, costing NT\$1,475,000,000 (about US\$49 million) per year.¹ Occasionally, a child may develop an opaque pulmonary consolidation with unusually round shape, which raises the concern of a tumor in the chest, causing anxiety to the pediatrician and parents. Herein, we report the case of a patient with so-called "round pneumonia", whose initial chest X-ray (CXR) findings mimicked those of a lung mass, but subsequently showed complete response to oral antibiotics alone. Recent findings and recommendations in the literature are also reviewed.

2. Case Report

A 7-year-old boy was referred to the emergency room (ER) of a regional hospital due to intermittent fever for 4 days. He had had dry cough for 3 weeks, intermittent abdominal pain in the periumbilical area for 2 days, and vomiting once on the day of arrival. He also had decreased appetite but with excellent activity. There was no history of systemic diseases. The patient's weight was 20 kg (3rd%; dropped 1 kg during the recent year), and his height was 119.6 cm (15–50th%).

On examination, this child had intact throat and tympanic membranes, several small and soft lymph nodes over bilateral anterior cervical triangles, clear lung sound, regular heart beat with no murmurs, epigastric tenderness, and warm extremities with prompt capillary refilling. CXRs showed a round-shaped opacity with clear margins in the left lower lobe (LLL) and the retrocardiac region, measuring

5.9 × 5.6 × 4.3 cm in size (width × height × depth). There were also mild streaking infiltrates in bilateral lower lung fields, especially the perihilar regions, while no pleural effusion was noted (Figures 1 and 2A). Laboratory data showed a white blood cell count of 9800/μL with left shift (metamyelocyte 5%, band-form 5%, segmented neutrophils 68%, lymphocytes 7%, atypical lymphocytes 1%, and monocytes 14%), a hemoglobin level of 11.5 g/dL, platelets count of 173 × 10³/μL, a C-reactive protein level of 8.7 mg/dL, with normal electrolytes, blood sugar, lactate dehydrogenase, and uric acid levels, renal and liver function tests, and peripheral blood smear. Under the working diagnosis of round pneumonia, the patient was suggested to be hospitalized and undergo antimicrobial therapy. However, due to family reasons, his mother requested that he be treated as an outpatient. His subjective abdominal pain had improved after an enema and intravenous administration of metoclopramide, and he was discharged and given oral amoxicillin/clavulanate (87.5 mg amoxicillin/kg/day) and azithromycin (10 mg/kg/day).

Two days later, the patient had become afebrile, but was still coughing badly and developed moderate diarrhea at home. On the 4th day after diagnosis, the LLL opacity had become smaller and less dense (Figure 2B). Further results of laboratory tests obtained at the ER showed serum anti-*Mycoplasma pneumoniae* antibody titer measurement to be 1:160 (+), rapid urinary antigen test for *Streptococcus pneumoniae* to be positive, and no bacterial growth on blood culture. Azithromycin was extended to a 5-day course, and amoxicillin/clavulanate was replaced with cefibuten due to antibiotic-associated diarrhea.

Three days later, or on the 7th day after the first ER visit, the patient reported that both his cough and diarrhea had improved. Cefibuten was continued to complete a 7-day course. On the 18th day after his first ER visit, follow-up CXRs showed complete resolution of the LLL lesion (Figure 2C), and serum anti-*M. pneumoniae* antibody titer

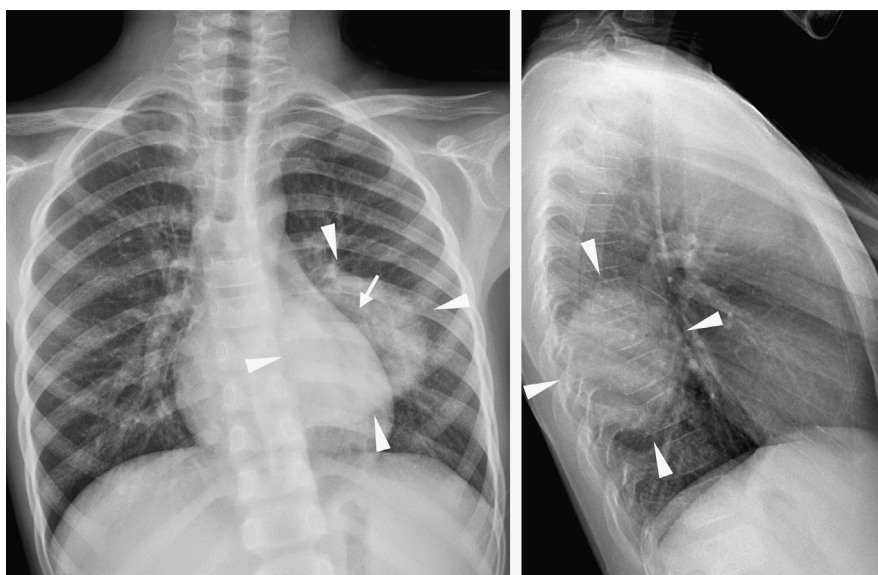


Figure 1 Chest X-rays at presentation showed a well-demarcated round opacity in the left lower lung field (arrowheads). Note the apparent air bronchogram on the posteroanterior view (arrow).

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