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# A Child Who Presenting With a Round Pneumonia

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**ABSTRACT:** Round pneumonia (RP) is characterized with spherical consolidation on chest radiograph and usually confused with pulmonary mass. RP is usually seen in children, and usually results from bacteria. The diagnosis of RP based on chest radiograph and clinical findings, further investigation is unnecessary and it is treated with appropriate antibiotics and supportive therapy. We present a 15- month old girl who was admitted with cough and fever and spherical mass appearence on chest radiograph, diagnosed as round pneumonia and treated with cefuroxim axetil without further evaluation. On the seventh day her both clinical and radiological findings recovered completely.
**Key Words:** round pneumonia, spherical pneumonia

**ÖZET:** ????????????
**Anahtar Kelimeler:** ??????????????

## INTRODUCTION

Round pneumonia (RP) is a type of pneumonia, characterized by spherical consolidation on chest radiograph and simulating pulmonary neoplasm or mass, but the outcome is usually good and no need for further evaluation[1-2]. We report the case of a 15-month old girl with round pneumonia who is succesfully treated with antibiotic therapy.

## CASE REPORT

A previously healthy 15-month old girl was admitted to hospital with symptoms of cough, fever and wheezy breathing. The cough developed in 7 days prior to admission, when she also experienced productive cough, subsequently wheezy breathing and fever which reached 39°C, while she did not receive any treatment at all. There was no other significant history. All her vaccines were applied appropriately, BCG scar was positive, her past history did not reveal anybody with tuberculosis in her enviroment.

On admission, her body temperature was 38 °C, the pulse was 128/min, respiratory rate was 36/min. The blood pressure was 80/60 mm Hg, the weight was 8860 g (5-10 centile), the length was 76 cm (25-50 centile), and the body weight for length was 80-90% of standart values. Physical examination showed pharyngeal erythema, chest auscultation revealed diminished breath sounds over the right upper lung zone, inspiratory crackles were heard over the same area. The remainder of physical examination was unremarkable. Laboratory data showed an elevated white blood cell count ($21.8x10^9$ cells. $L^{-1}$), on the peripheral blood smear 6% band, 66%PMNL and 28% lymphocyte, toxic granulation was positive, erythrocytes were hypochromic and microcytic. Sedimantation rate was 48 mm/hour, C reactive protein was 10 mg $dL^{-1}$, PPD was negative. Chest radiographies revealed a spherical mass (2,5x3 cm) in the right upper lob posterior segment (Figure 1). A blood culture performed before administration of antibiotic treatment was negative, and normal throat flora grew in the throat culture.

The patient was treated with 20 mg/kg/day cefuroxime axetil, hydration, cold vapor and postural drainage. On the 3th day fever resolved and clinical condition gradually improved. On the 7th day a spherical consolidation, in the right upper lob, resolved (Figure 2) and she was discharged with oral antibiotic therapy, which she would take for an additional 14 days. Ten days after she had been discharged, her control physical examination and chest radiograph revealed complete recovery.

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**Figure 1.** The initial chest radiograph and appearence of the round opacity

**Figure 2.** The chest radiograph obtained at 7th day of hospitalization and resolution of the round opacity

## DISCUSSION

Round or spherical pneumonia is a solitary round nodule with or without hilar lymphadenopathy on the chest radiograph and predominantly located in the posterior portions of the lung, multiple distribution is rare[2,3]. Round pneumonia is usually seen in children but can be also seen in adults[4,5].

S. pneumoniae has been frequently reported in the etiopathogenesis of RP, besides Klebsiella pneumoniae, Haemophilus influenzae, Mycobacterium tuberculosis, Coxiella burnetii and coronavirus may be responsible from RP[6,7]. Round pneumonia is considered as a mild disesase, butsometimes the outcome may be fatal, depending on the virulence of the infective organism and host immunity[7].

The mechanism of RP has been explained by the high affinity of pneumococci with the type II alveolar cell[8,9], so inflammatory process begins in the alveolar tissue and spreads centrifugally through the intra-alveolar channels (pores of Kohn and channels of Lambert), without circumbronchial relationship, and also absence of segmental boundaries in the alveolar tissue can produce round or spherical configuration[2,5,10].

Unnecessary antibiotic usage in the pneumonia is an important problem for cost effectiveness. It has been reported that up to 80% of non-bacterial pneumonia may be treated with antibiotics[11]. But the recognition of this entity is important in that the pneumonia may be confidently diagnosed as bacterial in etiology, usually pneumococcal; therefore appropriate antibiotic therapy may be instituted[2,6]. Also, because the “mass” may have an alarming appearance on chest radiograph, undue anxiety and unnecessary imaging may be avoided by properly diagnosing and treating the pneumonia.

The clinical and radiologic findings in our patient led to a diagnosis of round pneumonia. We treated our patient with cefuroxime axetil, because it was effective to S. pneumoniae which is most frequent pathogen in the RP. We did not detect S. pneumoniae in blood culture, and we did not obtain sputum culture, but clinical symptoms and mass appearence on the chest radiograph gradually recovered after a few days treatment, which supported our diagnosis. On the other hand, atypical pneumonia might be considered in the differential diagnosis. The age of our patient, and recovery of clinical and radiologic findings without macrolid antibiotic therapy were not compatible with atypical pneumonia.

In conclusion, if a patient with pulmonary mass appearence on chest radiograph, has respiratory tract symptoms, and also has no other findings to suggest malignancy, round pneumonia can be considered in the differential diagnosis. Round pneumonia is diagnosed with basic investigation and careful physical examination, so undue anxiety and unnecessary investigations could be prevented, on the follow up repeated chest radiographs within several days might be a guide.

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