

# Difficult Decision: Lobar Pneumonia or Foreign Body Aspiration?

## Zor Karar: Lobar Pnömoni mi Yoksa Yabancı Cisim Aspirasyonu mu?

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### Abstract

Foreign body aspiration is a frequently seen important health problem that can be mortal. It is more common in children under three years of age. It is among significant mortality and morbidity reasons for this age group, by causing many of respiratory systems complications. Foreign body aspiration is located in the discriminative table in patients with resistant pneumonia, bronchitis or bronchial asthma. In children patients, there are difficulties in diagnosing due to the shortness of story. This study presents a 7-year-old patient, whose respiratory complaints continue, despite treatment. It was difficult to distinguish whether the cause was due to foreign body aspiration or changes secondary to infection. We want to discuss what we have to discover in these situations and what clues we need to catch in such difficult situations. The presence of drowning crisis is a guide in the differential diagnosis. If not, there is no need for urgency for bronchoscopy. May be considered as misdiagnosis or inadequate treatment.

**Keywords:** Children, Aspiration, Pneumonia

### Özet

Yabancı cisim aspirasyonu sık gözlenen ve mortal sonuçlanabilen önemli bir sağlık problemidir. Üç yaş altı çocuklarda daha sık görülmektedir. Birçok solunum sistemi komplikasyonuna neden olabildiğinden, bu yaş grubu için önemli mortalite ve morbidite nedenleri arasındadır. Dirençli pnömoni, bronşit veya bronşiyal astım hastalarında yabancı cisim aspirasyonu ayrıca tanıda yer almaktadır. Çocuk hastalarda öykü yetersizliğinden tanıda güçlükler yaşanmaktadır. Bu çalışmada tedaviye rağmen solunum sıkıntısı devam eden, yabancı cisim aspirasyonu mu, enfeksiyona sekonder değişiklikler mi ayırımını yapmaktan zorlandığımız 7 yaşında hasta sunulmuştur. Böyle durumlarda tanıyı kolaylaştıracak bulguların neler olduğunu ve zor vakalarda yakalamamız gereken ipuçlarını olgumuz üzerinden tartışmak istedik.

**Anahtar Kelimeler:** Çocuk, Aspirasyon, Pnömoni

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### Introduction

Foreign body aspiration is a frequently seen important health problem in childhood that can be mortal (1). Foreign body aspiration is seen in proportion of 7% among fatal accidents, especially in children between 1 and 3 years of age (2). On the other hand, it is known that the most common cause of acute upper respiratory tract obstruction is foreign body aspiration (3). Foreign body aspiration is diagnosed by evaluating both the history and clinical and radiological findings together. In general, clinical signs include respiratory distress, cough episodes, wheezing, and asymmetric breathing sounds (4). Late diagnosis in cases without acute respiratory distress leads to increased morbidity and mortality (5). However, there are difficulties in differential diagnosis of treatment-resistant or inadequately treated pulmonary infections.

### Case

A seven-year-old girl was brought to our clinic from external center with coughing, wheezing, and a shortness of breath, increasing at night that began 1 week ago. It was learned that on the basis of these findings, he was hospitalized in an external center

with ronchopneumonia and treated with parenteral ceftriaxone (100 mg/kg/day), clarithromycin (15 mg/kg/day), systemic corticosteroid for 5 days and as inhalation therapy received budesonide and salbutamol, when the findings did not improve he was referred to us. There was no foreign body aspiration or sudden drowning in his biography. It was learned that he had bronchitis twice in the past. On physical examination, his body weight was 25-50 percentiles, his height was 50-75 percentiles, his general condition was medium-well, and his conscious was open. The axillary temperature was 37.5 °C, the blood pressure was 100/65 mmHg, the pulse was 110/min, the respiratory rate was 24/min. His respiration was dyspneic and intercostal, and subcostal retractions were present, and there were creeping ralles in the bases of both lungs. In laboratory tests, white blood cell count was 9000/mm<sup>3</sup>, C-reactive protein was positive. On chest x-ray, there was an area of right upper lobe in the lung (Figure 1). Computerized thorax tomography was performed. A large collapse-consolidation area was observed in the upper lobe of the right lung, that completely filled the lobe, and there were also small liquid bronchograms in the consolidation that could indicate air bronchograms and post obstructive processes. Also in the right upper lobe there was a bronchial obliteration appearance (foreign body or secretion doubt) (Figure 2). A joint consultation was conducted with pediatric surgery, infections and radiology departments. It was decided to continue the medical treatment on the basis of the radiological evaluation of the frosted glass, the infection department thinking of untreated

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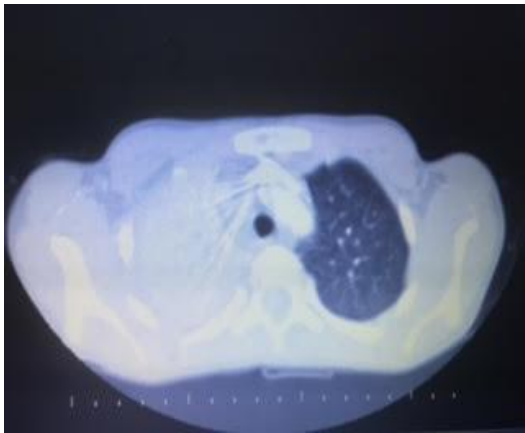
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pneumonia/atelectasis, and the patient not having respiratory distress in the drowned state. However, the transition to ertapenem, which is from carbapenem group, is effective in the therapy of community and hospital-based infections; and to clindamycin that is effective to anaerobes, was planned in the treatment. During the course of the treatment, the patient's condition improved. On the sixth day, the chest X-ray showed infiltrative areas were markedly declining. Upon this, foreign body aspiration has been doubtlessly excluded. The clindamycin was continued for six days, and the ertapenem was continued for ten days. The patient was discharged by healing.



**Figure 1.** Chest x-ray, there was an area of consolidation of the right upper lobe in the lung



**Figure 2.** In the right upper lobe there was a bronchial obliteration appearance (foreign body or secretion doubt)

## Discussion

In children under three years of age, foreign body aspiration (FBA) is often observed due to the incomplete development of eating skills and tooth structure and behaviors such as the tendency to take objects into the mouth, moving around while eating, crying, and laughing (6). The incidence of FBA is higher in developing countries (7). Foreign bodies in the airways can lead to chronic lung injury that can further lead to pulmonary resection (8).

In children diseases such as pneumonia, especially lobar pneumonia, lung abscess,

bronchitis, bronchiectasis and bronchial asthma, sometimes show resistance to treatment. Similarly, clinical improvement may be delayed in patients with late-onset or inadequate treatment. In such cases, the possibility of FBA should be considered and differential diagnosis should be made. This is not always easy. Although the present approach strongly suggests that the diagnosis of FBA is considered as a priority in such cases and that bronchoscopy is performed, the situation may be different in some patients.

Chiu and et al. (9) classified FBA patients into two groups according to the elapsed time from aspiration to definite diagnosis as early (< or =24 hours after aspiration) and late diagnosis (>24 hours after aspiration). Obstructive emphysema (53%) and normal chest radiograph (34%) were the most frequent radiological findings. Parenchymal consolidation with pneumonia was predominant in the group of late diagnosis ( $p<0.05$ ). Bronchial asthma ( $n=9$ ), pneumonia ( $n=8$ ), and common cold ( $n=5$ ) were the most common mistaken diagnoses. Witnessing of choking episode was the most important historical event to pinpoint an early diagnosis of FBA in children ( $p=0.002$ ). Although there was a radiographic evidence of parenchymal consolidation in our case, there was no coughing in the form of drowning. For this reason, our case was consistent with the second group of patients, who were late-onset and misdiagnosed.

Similarly, Metrangolo and et al. (10) investigated strong findings supporting the recognition of FBA in their study. A foreign-body (FB) was endoscopically removed in 70 children; tracheobronchoscopy (TBS) could not show any aspirated object in 17 children. A history of a choking crisis was present in 71 children of 87, respectively in 67 of 70 with documented FB and in 4 of 17 without FB. From a diagnostic point of view, the choking crisis showed a sensitivity of 96% and a specificity of 76%. As diagnostic tools, clinical examination, signs, and symptoms showed a sensitivity of 84.2% but a very low specificity (11.7%). The fact that there were no drowning crises in our presence, distracted us from the FBA. The presence of drowning crises in both studies was found to be a strong supportive finding. Bronchial asthma, pneumonia and colds are the most common misdiagnoses. In cases of difficult diagnosis, the presence of drowning crisis is a guide in the differential diagnosis.

The patient was also evaluated jointly by pediatric surgeon, radiology and infection departments. Thus, the patient was evaluated for multidisciplinary treatment, and the most appropriate treatment was determined for the patient by providing a consensus. As a result of this approach, an invasive bronchoscopy procedure was not performed to the patient.

In conclusion, clinical and laboratory findings should be researched rapidly in patients suspected of FBA, and the presence of specific and sensitive findings should be evaluated thoroughly. For a timely and correct treatment, if necessary, the treatment protocol should be organized in a multidisciplinary approach. The presence of drowning crisis is a guide in the differential diagnosis. If not, there is no need for urgency for bronchoscopy. It may be considered as misdiagnosis or inadequate treatment.

**Informed Consent:** Written informed consent was obtained from patient who participated in this case (02.06.2016).

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