

A Cause of Asthma Misdiagnosis: Foreign Body Aspiration That Allows Air Passage Through

Yanlış Astım Tanısının Bir Nedeni: Hava Geçişine İzin Veren Yabancı Cisim Aspirasyonu

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ABSTRACT

Foreign body aspiration is a life-threatening condition in childhood. Clinical and radiological diagnosis may be delayed in cases in which foreign body has a lumen and allows the air passage through and is also misdiagnosed as asthma or chronic cough. The delay in the diagnosis can cause morbidity and mortality. We have reported the case of an 11-year-old boy with foreign body aspiration who has been treated as asthma. His dry cough could not be controlled with the asthma treatment. He had swallowed a piece of pipette before the coughing started. Fiber optic bronchoscopy was applied. The piece of pipette was seen in the left main bronchus which allowed the air passage through its lumen. After the removal, his complaints disappeared. In conclusion, the patients with a history of aspiration and without signs of lateralization in physical or radiological examinations should be evaluated by fiber optic bronchoscopy in terms of foreign body aspiration.

Keywords: Asthma, children, foreign body aspiration

ÖZ

Yabancı cisim aspirasyonları çocukluk çağında yaşamı tehdit edebilen bir durumdur. Aspire edilen yabancı cismin lümenli olması ve hava geçişine izin vermesi durumunda, astım veya kronik öksürük gibi yanlış tanıların konulmasına ve klinik ve radyolojik tanının gecikmesine neden olabilir. Tanıdaki gecikme mortalite ve morbiditeye neden olabilir. Yazımızda yanlış astım tanısı ile takip edilen ve yabancı cisim aspirasyonu saptanan 11 yaşında erkek olgumuzu sunduk. Hastanın kuru öksürük şikayeti astım tedavisi ile kontrol altına alınamamıştı. Şikayetin başlangıcından bir hafta önce hastanın ayran içerken pipet parçasını aspire ettiği öğrenildi. Hastaya fiberoptik bronkoskopi uygulandı. Sol ana bronş içinde lümeninden hava geçişine izin veren pipet parçası görüldü. Yabancı cisim çıkarıldıktan sonra hastanın şikayetleri sona erdi. Sonuç olarak, aspirasyon öyküsü olan ve fizik muayene ve radyolojik incelemelerinde lateralizasyon bulguları saptanmayan hastalar yabancı cisim aspirasyonu açısından fiberoptik bronkoskopi ile değerlendirilmelidir.

Anahtar kelimeler: Astım, çocuk, yabancı cisim aspirasyonu

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INTRODUCTION

Foreign body aspiration (FBA) is defined as asphyxia caused by suffocation or inhalation of items of food and nonfood into the respiratory tract and as a cause of morbidity and mortality during childhood. It is frequent in children under 2 years old and is

known to be the fourth significant cause of accidental death in children younger than 3 years old and slightly more common in males ^(1,2).

In most cases, the aspirated foreign bodies tend to lodge in the bronchi, less commonly in trachea and larynx. It causes inflammation and irritation in respiratory tract by impacted object's obstruction of



the respiratory tract. Clinical patients with FBA may present acute respiratory failure or recent onset of symptoms such as cough and wheezing⁽³⁾. History and radiological findings may enable the clinician to detect the FBA soon enough in many cases. But delayed diagnosis which is defined as diagnosis time exceeding 24 hours is also common and occurs in approximately 40% of the patients with FBA⁽⁴⁾.

Herein, we have reported the case of an 11-year-old boy with asthma misdiagnosis and an unusual type of FBA, a piece of pipette which allowed air passage through. In the presented case, the patient was diagnosed 8 months later with fiber optic bronchoscopy (FOB) and the delay is thought to be caused by the type of the foreign body.

CASE PRESENTATION

An 11-year-old boy, previously healthy, was admitted to our clinic with chronic cough he had been suffering for the last eight months. He had been being followed-up with a diagnosis of asthma for the last 6 months in another center. The patient's cough was dry, increased with effort, and continued both day and night with wheezing. He had a history of secondhand smoke exposure and was keeping a hamster at home. In the patient's history, one week before the onset of the complaint, a piece of pipette had been swallowed while drinking juice, but there was no bruising, choking, or coughing after the aspiration. The chest computed tomography taken with the suspicion of FBA at the time was normal.

Inhaled corticosteroid was started considering asthma in the patient. However, he had no clinical improvement despite regular use of inhaled corticosteroids for six months. Consequently, he was referred to our clinic for further examination due to his unresponsiveness to treatment and FBA suspicion. There was no history of additional complications other than chronic cough in the 6-month follow-up of the patient.

In his physical examination, wheezing was heard bilaterally. He had no sign of respiratory failure. On the chest x-ray, air trapping was seen in left lung (Figure 1). FOB was planned because foreign body



Figure 1. Air trapping in the left lung in the chest x-ray image.

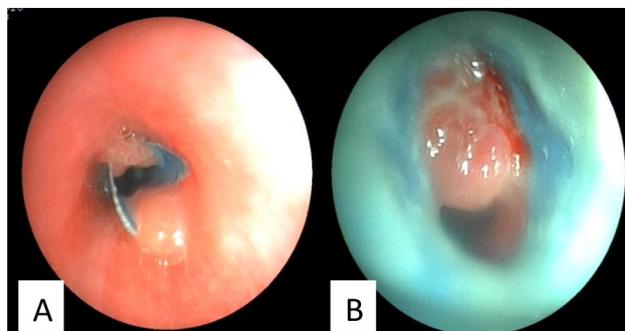


Figure 2. (A) Foreign body (a pipette) appearance in the left main bronchus during flexible bronchoscopy operation and (B) the view through the lumen of the foreign body.

aspiration was suspected. During the FOB, a piece of pipette with granulation tissue around it was seen in the left main bronchus, 2 cm distal of the carina. It was possible to pass through the lumen of the pipette piece to the distal with a bronchoscope (Figure 2A,B). The foreign body which had a lumen, approximately 1.5 cm in length, and granulation tissue in it was removed by rigid bronchoscopy (Figure 3). The patient's symptoms improved in the follow-up after the procedure and his medical treatment of asthma was terminated. There was no need for use of medication again in the follow-up.

A written consent was obtained from both the patient and the parents for publishing the case.

DISCUSSION

Foreign body aspiration is a common cause of life-threatening respiratory distress in children, and usually seen under 3 years of age. Generally, acute onset of symptoms such as choking, cough, tachyp-



Figure 3. The length of the foreign body (approximately 1,5 cm tall).

nea, stridor and focal monophonic wheezing, or decreased air entry could be presented ⁽⁵⁾. Clinical and abnormal chest x-ray findings such as aeration difference are major diagnostic factors for FBA. Besides, it should be kept in mind that physical examination and radiological findings in patients with suspected FBA may be normal or may reveal nonspecific findings ⁽⁶⁾.

History and clinical findings provide the early diagnosis. Yet, a delay in diagnosis and its complications are not rare either ⁽⁷⁾. Respiratory complications such as chronic cough or wheezing, recurrent pneumonias, atelectasis, life-threatening airway obstruction, or lung abscess may be detected in patients with delayed diagnosis ^(4,5).

Coughing is also the most frequent symptom of asthma and well-being is seen in the interim periods ⁽⁷⁾. Detailed history, age of the patient, the time when coughing started, character of the cough, fac-

tors that trigger coughing, previous treatments and illnesses, family history, and environmental conditions must be questioned in children with chronic cough ⁽⁸⁾. In cases where there is no response to standard asthma treatment, lack of compliance, poor inhalation technique, severe course of asthma, treatment resistant asthma, comorbid conditions, exposure to sensitizing allergens, pollution, or tobacco smoke should be investigated ⁽⁶⁾. When all these factors are excluded, asthma diagnosis should be reviewed and different diagnoses such as FBA should be considered and FOB should be evaluated in the diagnosis.

The differences in symptoms and findings in patients with FBA may be related to the type, size and location of the foreign body. Types of foreign bodies may vary from country to country, depending on the diet and traditions of the population in question ⁽⁵⁾. Food is mostly detected as aspirated foreign body. In the study of Tan et al. ⁽⁵⁾ the most common nonfood foreign bodies were plastic objects. The delay is especially evident when the foreign body does not cause airway obstruction and disrupt respiratory physiology. When a foreign body is aspirated, acute inflammation occurs as early as three days after the event and progression to chronic inflammation is observed as early as ten days. It is important that detection of a foreign body aspirated into respiratory tract should be followed by removal as soon as possible to avoid inflammatory reaction and development of granulation tissue ⁽⁷⁾.

The history taken from parents is very important in the diagnosis of FBA. Especially in patients with or without FBA history, reliance on a negative chest x-ray or computed tomography report may feint the clinician. More than half of the patients with wrong or misdiagnoses were treated as asthma or upper respiratory tract infection in the study of Tan et al ⁽⁵⁾. FBA should be kept in mind in patients whose symptom control cannot be achieved. In the diagnosis and treatment of FBA, in addition to the use of rigid bronchoscopy to remove the foreign body from respiratory tract with its wide working channel, FOB plays an important role in diagnosis.

CONCLUSION

In the presented case, the patient was an 11-year-old and he aspirated a piece of plastic pipette and had a lumen that allowed air passage through the lumen. The presence of mild symptoms and vague aeration difference in chest x-ray may have caused the patient to be diagnosed 8 months later. It should be kept in mind that FOB should be performed in patients with suspected FBA.

Conflict of Interest: None.

Informed Consent: Consent was obtained from the patient.

REFERENCES

1. Safari M, Manesh MR. Demographic and clinical findings in children undergoing bronchoscopy for foreign body aspiration. *Ochsner J.* 2016;16:120-4.
2. Hewlett JC, Rickman OB, Lentz RJ, et al. Foreign body aspiration in adult airways: therapeutic approach. *J Thorac Dis.* 2017;9:3398-409. <https://doi.org/10.21037/jtd.2017.06.137>
3. Sehgal IS, Dhoooria S, Ram B, et al. Foreign body inhalation in the adult population: Experience of 25,998 bronchoscopies and systematic review of the literature. *Respir Care.* 2015;60:1438-48. <https://doi.org/10.4187/respcare.03976>
4. Rahmadona R, Asyari A, Novialdi N, et al. Foreign body bottom of pen in bronchus with and without atelectasis. *Jurnal Kesehatan Andalas.* 2018;7:64-70. <https://doi.org/10.25077/jka.v7i0.830>
5. Tan HK, Brown K, McGill T, et al. Airway foreign bodies (FB): a 10-year review. *Int J Pediatr Otorhinolaryngol.* 2000;56:91-9. [https://doi.org/10.1016/S0165-5876\(00\)00391-8](https://doi.org/10.1016/S0165-5876(00)00391-8)
6. łoś-Rycharska E, Wasielewska Z, Nadolska K, et al. A foreign body in the mediastinum as a cause of chronic cough in a 10-year-old child with asthma. *J Asthma.* 2019;1-5. <https://doi.org/10.1080/02770903.2019.1684515>
7. Can D, Yilmaz O, Astroy S, et al. Aspiration of foreign bodies that allow air passage through. *Open J Pediatr.* 2011;1:90-3. <https://doi.org/10.4236/ojped.2011.14021>
8. Nacaroglu HT, Ünsal Karkiner CŞ. Approach to chronic cough in children. *BUCHD* 2014;4:1-9. <https://doi.org/10.5222/buchd.2014.001>