

## A Screw in the Left Bronchus Aspirated Foreign Body Diagnosed after 4 years: A Case Report

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### Abstract

Foreign body aspiration may cause airway obstruction, either partial or total, which can be life-threatening. Delayed diagnosis will increase patient morbidity, especially the occurrence of bacterial infections. This case report discusses chronic foreign body aspiration in a six year-old boy, in which signs and symptoms arise 4 years after foreign body aspiration occurred. The boy was the second child of the family. He came from a Sundanese family, considered as low income family, and the parents were high school graduates.

**Key Words:** Aspiration, Chronic, Foreign Body.

\*Please cite this article as Hakim DDL, Rachmawati Rahadian FJ, Somasetia DH, Peryoga SU, Meilyana F. A Screw in the Left Bronchus Aspirated Foreign Body Diagnosed after 4 years: A Case Report. Int J Pediatr 2020; 8(2): 10899-903. DOI: [10.22038/ijp.2019.45007.3709](https://doi.org/10.22038/ijp.2019.45007.3709)

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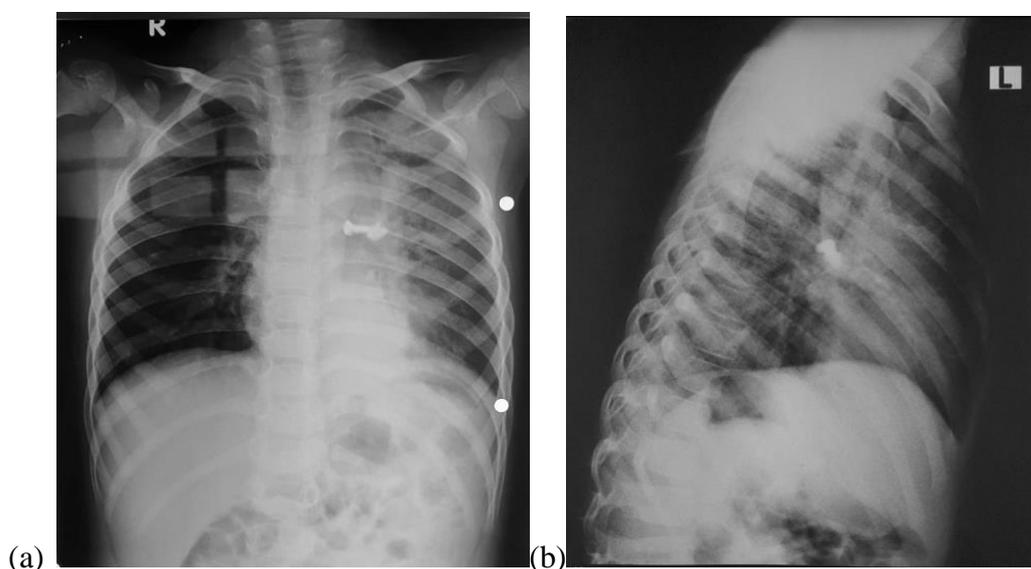
Received date: Aug.24, 2019; Accepted date: Dec.12, 2019

## 1- INTRODUCTION

Foreign body aspiration often occurs in children aged 1-3 years, with the highest incidence found in children aged 1-2 years (1). Foreign body aspiration obstructs the airway, either partial or total, which can be life-threatening. However, some patients show chronic symptoms such as chronic cough, wheezing, pneumonia, stridor, resulting in foreign body aspiration often being diagnosed as asthma, upper respiratory tract infection, pneumonia, or croup. Delayed diagnosis may increase patient morbidity, especially the occurrence of bacterial infections (2). One study showed delayed diagnosis of a patient who experienced foreign body aspiration for three days (3). This case report discusses chronic foreign body aspiration, in which signs and symptoms arise 4 years after foreign body aspiration occurred.

## 2- CASE REPORTS

A six-year-old boy was referred to Hasan Sadikin General Hospital in Bandung, Indonesia, with the chief complaint of shortness of breath for two days before admission. The complaint was preceded by a cough that had been continuing for two weeks before. Complaints were also accompanied by fever since one week ago. The patient also complained about severe pain in the chest area. The patient had a history of swallowing a screw four years ago. One week before being referred to Hasan Sadikin General Hospital, the patient was brought to another hospital (Sekar Kamulyaan Hospital) for treatment. The patient was hospitalized for four days and had a chest X-ray, which showed a foreign body with a density similar to that of metal in perihilar region, pneumonia, and suggestive segmental atelectasis (**Figure.1**).



**Fig.1:** Chest X-ray: anteroposterior view (a) left lateral view (b) Pneumonia in the left lung has not clearly improved. A projected opaque shadow of metal density (screw/ foreign body) in the left paravertebral (T5-T6).

Further examination was carried out by taking a thorax CT scan, and a hyperdense foreign body was found obstructing the superior branch of left bronchus which causes partial atelectasis in the superior

lobe of the left lung. There was an abscess in the posterior basal segment of the left lower lobe, whereas no lymphadenopathy was found in the paratracheal, subcarinal, and parahilar region (**Figure.2**).



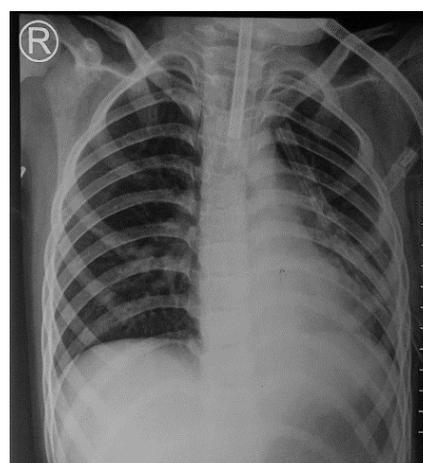
**Fig.2:** Computed Tomography (CT scan) of the thorax.

The child was then referred to Hasan Sadikin General Hospital in Bandung for a bronchoscopy. A black colored foreign body with irregular shape was found (**Figure.3**). However, metal debris and pus were still left in the left bronchus after suctioning due to the brittleness of the foreign body. Thoracotomy was then performed to remove the rest of the metal debris and pus. After the procedures, the

patient was treated in the Pediatric Intensive Care Unit. On the fifteenth day of care the child was declared eligible to go home with an improvement of condition (**Figure.4**). The patient was the second child of the family. He came from a sundanese family, considered as low income family, and the parents were high school graduates.



**Fig.3:** Foreign body (screw) which was removed from the bronchus.



**Fig.4:** Thorax X-ray (anteroposterior view) after bronchoscopy and thoracotomy.

### 3- DISCUSSION

Aspiration of the foreign body often occurs in children aged 1-3 years (4). At this age children often insert objects into their mouths while their ability of swallowing has not developed perfectly. Foreign objects that are often found are organic foreign objects (fruits, seeds, or nuts), and inorganic ones (coins, pins, small parts of toys, pen covers, metal materials). Aspirated organic foreign bodies, in general, will quickly cause an inflammatory reaction which will further aggravate the obstruction and shorten the duration of asymptomatic aspiration. Meanwhile, aspiration of an inorganic foreign body will cause a longer duration of the asymptomatic condition, unless the object is sharp which can cause trauma to the respiratory tract (5).

Foreign body aspiration is commonly found in the bronchi rather than in the trachea or larynx (4). The right bronchus is the most common site due to the more horizontal anatomical position and its greater diameter compared to the left bronchus (6). In this case report, the foreign body was found in the left bronchus. Foreign bodies in the bronchi will often cause symptoms such as coughing, decreased breath sounds on the affected side, and wheezing (5).

Signs and symptoms of foreign body aspiration depend on the type, location, and size of the foreign body, duration, and degree of obstruction caused. Therefore, a thorough history taking from parents is important because children are often afraid of expressing what they feel. History of choking in children can be an indication of foreign body aspiration. However, if the child has no history of choking, the presence of foreign body aspiration should not be excluded from the diagnosis, to reduce the risk of late diagnosis. An X-ray examination should be performed on a child suffering from chronic cough for no apparent reason (2). In this case, the child

had no history of choking but there was a history of swallowing the screw 4 years ago. The diagnosis was eventually made after obtaining a chest X-ray. The aspirated screw was made of metal which falls into the category of inorganic foreign bodies, thus allowing a long duration of the asymptomatic period. Aspirations of foreign bodies such as screws are known to cause serious complications such as ulceration, abscesses, or fistulas (7). The presence of foreign objects in the trachea or bronchus will cause an acute inflammation followed by the infiltration of chronic inflammatory cells (2).

Research by Rodriguez et al., showed that among 56 patients who came with a complaint of swallowing a foreign body, only 10 patients underwent a procedure in less than 24 hours while the other 26 patients received a procedure after 15 days.(8). Children who got late diagnosis will generally show symptoms of pneumonia, bronchiectasis, or atelectasis (9). Moreover, long-term complications will often arise in the form of pleural thickening, bronchial stenosis, pneumonia, granulomas, and mucosal erosion (5, 9).

In this case, the child complained of suffering from chronic cough and was also found to have sub-segmental atelectasis through chest X-ray and CT-scan. Bronchoscopy is a recommended procedure for children who suffer from foreign body aspiration. This procedure is aimed to identify and extract an aspirated foreign body. A bronchoscope is rigid so that it gives good control for the airway, provides good visualization, and makes manipulation of the foreign body using forceps much easier, and reduces the incidence of mucosal bleeding. In this case, after the patient was diagnosed with foreign body aspiration, a bronchoscopy was performed to remove the screw from the left bronchus. However, there was metal debris from the screw which could not be extracted by bronchoscopy.

Therefore, the next step was to perform thoracotomy. Thoracotomy is rarely suggested in foreign body aspiration that can be viewed. However, a thoracotomy may be performed in a condition where a foreign body is in the distal bronchus that cannot be reached by bronchoscopy (10).

#### 4- CONCLUSION

Foreign body aspiration often occurs in children. Therefore, proper history taking, physical examination, and supporting examination can prevent late diagnosis or misdiagnosis. The presence of a history of choking or swallowing a foreign body should be asked during history taking in children with complaints of chronic cough or respiratory problems. Proper diagnosis and immediate action can reduce the risk of morbidity in children.

#### 5- ACKNOWLEDGEMENTS

We thank all the staff of the Pediatric Intensive Care Unit Division of Hasan Sadikin General Hospital who participated and supported this study.

**6- CONFLICT OF INTEREST:** None.

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