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Aspiration of A Straight Pin in Extreme Left Bronchial in A Young Woman: A Case Report

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ABSTRACT

Foreign body aspiration (FBA) remains a significant cause of morbidity and mortality, especially among young children. However, FBA is rare in adults, and it occurs in the settings of neurological impairment and altered consciousness. We herein present a rare occurrence; a middle age female who aspirated a straight metal pin while holding it in her mouth for her veiling. This is rare because, unlike most other cases, our patient had none of the conventional risk factors for FBA and the incidence took place in a normal mental state. In our case report the aspirated metal pin had placed in the terminal part of her left bronchus, while according to the literature, once a foreign body enters the respiratory tract, it is most likely that the object be placed in the right bronchus due to its straighter angle. The patient received the necessary imaging modalities and due to the complexity of her condition, she had to undergo thoracotomy. This adds to the rarity of our report since FBA patients usually suffice either flexible or rigid bronchoscopy.

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Introduction

Foreign body aspiration (FBA) remains a significant cause of morbidity and mortality, especially among young children, with a mortality rate approaching 2.5% (1). The high incidence of FBA in children is due to their tendency to explore objects in their mouths. However, tracheobronchial FBA is rare in adults, and it occurs in the settings of neurological impairment and altered consciousness(2). In Iran, and other Islamic countries where women wear headscarves, there is a high incidence of inhaled FBs due to placing the pins in their mouths before

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attaching them to their veils (3). Nevertheless, they rarely present with the classic triad of cough, dyspnea, and cyanosis (4); instead, they develop signs and symptoms such as cough, hemoptysis, increased sputum production, wheezing, and dyspnea or worsening of chronic respiratory disease (5).

The shape and substance of a foreign object that is inhaled can affect the damage it causes, with sharp objects causing tissue damage and round objects potentially causing blockages. The chemical makeup of the object can also play a role in the severity of the effects on the respiratory system. The size and location of the object can also impact the symptoms and potential complications. A small foreign body with a smooth surface tends to be well tolerated. Metal, especially iron and steel produce the least reaction. On the other hand, vegetables such as peanuts and beans produce the most severe inflammation (6).

Foreign body aspiration in an adult may be managed by either rigid or flexible fiberoptic bronchoscopy, depending on the location of the foreign body and practice patterns. While rigid bronchoscopy has been used to remove the foreign airway body in adults, there is no gold standard for the procedure. Flexible fiberoptic bronchoscopy is a rapid, cost-effective, and safe procedure. Therefore, in the current study, flexible fibrotic bronchoscopy was chosen as the first procedure to remove the foreign body in adults, and rigid bronchoscopy was used as a second-line procedure. For patients who did not have successful flexible or rigid bronchoscopy, thoracotomy was applied to remove foreign bodies (7).

We herein present our patient who inhaled a pin (Figure1) when putting it in her mouth and coughing at the same time, and the interesting point is that the pin went into the left bronchus, contrary to most of the time.

Case Report

A 42-year-old female was admitted to the outpatient department due to aspiration of a Straight pin (figure1) suddenly while holding it in her mouth for her veiling. She explained that when she puts the small pin in her mouth to fix her hijab, she coughs simultaneously

Figure 1. The foreign body

and, as a result, aspirates the little pin. Aspiration of a foreign body into a tracheobronchial tree may produce severe signs and symptoms such as acute dyspnea, asphyxia, hemoptysis, pneumothorax, laryngeal edema, and even cardiac arrest (8), but she had no symptoms. Also, the physical examination was completely normal. She had no past medical history and no allergic history, and also she reported no smoking history.

A chest X-ray was asked (Figure2). The results were not expected; the pin was in the inferior posterior lobe of the left lung, unlike the common cases. Furthermore, to be sure of this finding, a chest CT scan was asked (Figure3). In the CT scan metal density image was seen in the left lower segmental bronchus with pulmonary parenchymal penetration in the same area. A brief opacified ground-glass patch was observed in the basis of the lower lobes on both sides, which was probably due to dependent atelectasis secondary to the hypoventilation of the patient.

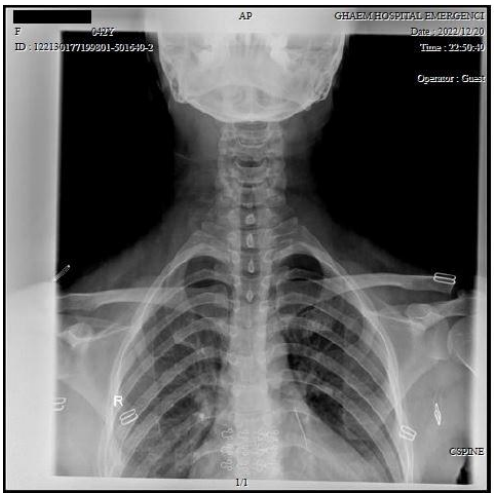

Figure 2. Before operation X ray

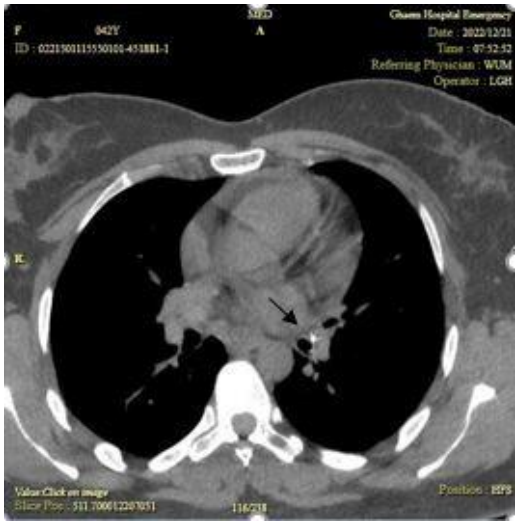

Figure 3. Before operation CT

The patient was transferred to the operating room for bronchoscopy. Contrary to most cases reported that the foreign body is removed by rigid bronchoscopy, in our case, the pin was not found. So after failing to detect the foreign body through rigid bronchoscopy, we tried again with flexible bronchoscopy. But it had the same result, so a thoracotomy was decided. In the right lateral position of the patient, a left posterolateral thoracotomy was performed, and the foreign body was palpated in the posterodorsal segment of the left lung, which was very close to the pleura (Figure4). Therefore, an incision was made in the lung tissue where the foreign body had been located, and the pin was removed while leaving the blood vessels untouched. Then, the place was repaired and tested for air leaks; there were no air leaks (Figure5), and a chest tube number 32 was inserted and directed to the posterior and superior, and the chest wall and skin were closed (Figure6).

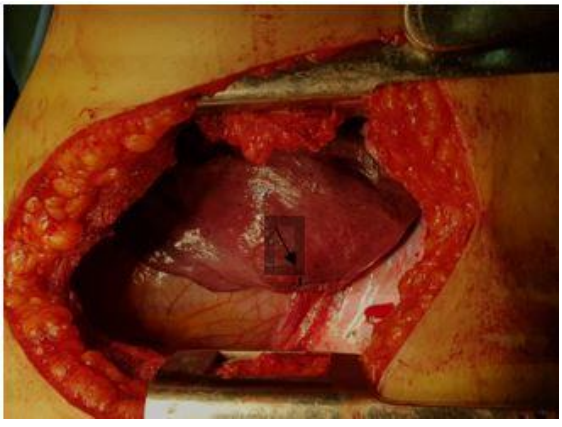

Figure 4. Posterolateral thoracotomy

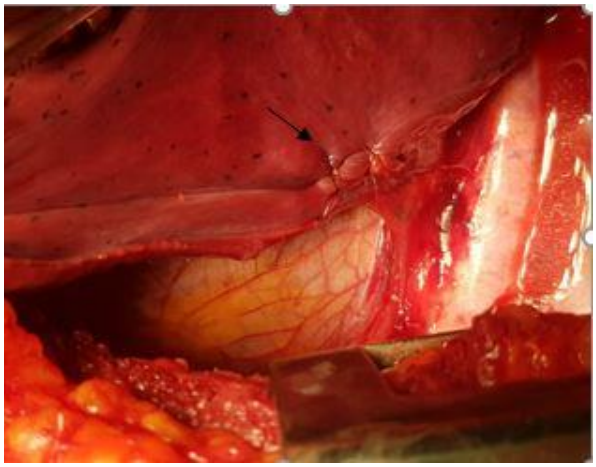

Figure 5. lower lob repair after foreign body removal

Discussion

Foreign body aspiration has high morbidity and mortality, and its prevalence is higher in young children, and it is rare in adults, except in people who have decreased levels of consciousness or neurological disorders or in Muslim people who put the pin of their scarf in their mouth to adjust their scarf. According to the articles and studies, if a person aspirates a foreign object, based on the special anatomy of the bronchus when it is divided into the left and right bronchus and the straighter angle of the right bronchus, the foreign body enters the right bronchus. But in our case report, contrary to the mentioned prevalence, the aspirated pin had entered her left bronchus. Bronchoscopy is often used to examine and remove the aspirated foreign body, and there are fewer cases where the

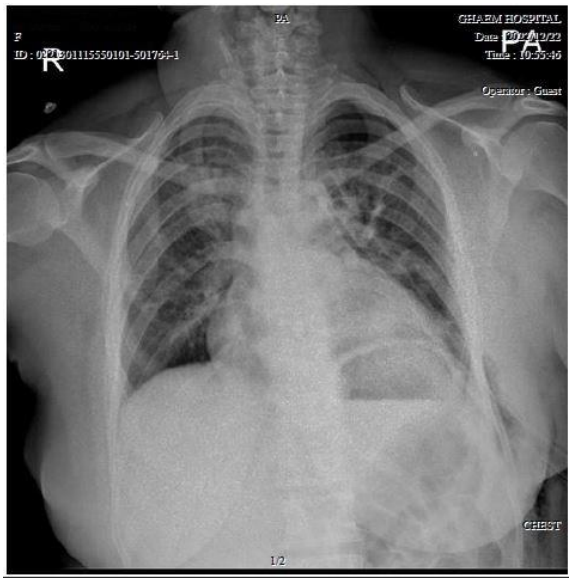

Figure 6. Post operation x ray

foreign body has reached the end of the bronchi and requires flexible bronchoscopy. Because the foreign body usually goes down to the main bronchus and, therefore, can be removed with rigid bronchoscopy. However, a foreign object may enter the right lobar bronchi in a few cases, and we use flexible bronchoscopy to remove it. However, during the procedures performed in our case, the aspirated foreign body was not found with rigid bronchoscopy, or even flexible bronchoscopy, and thoracotomy was required. Because the aspirated straight pin went to the end of the bronchi, thoracotomy was needed. The cases that required thoracotomy until today, were patients who came late, and because of this, they suffered from the displacement of the foreign body or complications (9). But due to the forementioned reasons, she needed a thoracotomy. Subsequently, by performing a left posterolateral thoracotomy procedure, a foreign body was touched in the posterodorsal segment of the left lung, which was very close to the pleura, and the foreign body was removed by taking care of the vessels, and afterwards the chest wall and skin were closed .

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